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Worldwide Report

ENVIRONMENTAL QUALITY

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RESEARCH SOCIETY WARNS OF ARCTIC OIL SPILL DANGER

Oslo NORGES HANDELS-OG SJØFARTSTIDENDE in Norwegian 14 Feb 80 p 5

[Article by K.A.T., NH OG ST correspondent, Trondheim: "Oil Recovery in the Arctic: Increased Danger of Human and Material Failure"]

[Text] Oil discharges in our Arctic fields can have especially serious consequences whether they occur on land or at sea. The subsequent cleanup of oil spills in these areas will entail extra great practical problems. This is part of the conclusion of the SINTEF [Society for Industrial and Technical Research] report, which has just come out, on the cleanup of oil spills in the Arctic.

The investigation, which is based on a very comprehensive list of available technical literature on the topic, was carried out according to assignments from the State Pollution Inspectorate, and the conductors of the proceedings were investigators Erling Sendstad and Knut Gåseidnes.

In the report is given a detailed description of the physical and biological characteristics of the Arctic natural environment which are of interest with regard to future oil operations in this corner of the world. Then a sketch is given of the probable developments in an oil discharge without mentioning current oil safety methods and the knowledge of ecological effects which these involve.

No Strategy

The investigators assert that there exists today no collection method with adequate capacity to handle a larger discharge of oil in the Arctic. When it is a question of an oil spill on land or of oil which has reached the shore from a discharge at sea, a mechanical and manual cleanup in most instances is thought not to be practically accomplishable, for one thing because it would not be possible to enlist an adequately great number of personnel and to use effective mechanical equipment. With regard to the use of chemical agents, the biological environment entails several special circumstances which this must take into account and this method must be evaluated closely on the basis of local physical and biological facts.

Finally it is stated in the report that in today's situation it is not possible to formulate an oil safety strategy for the Norwegian Arctic (the Svalbard area), for the simple reason that the necessary physical and biological data are lacking which such a strategy must be based upon.

Complications

If an oil discharge takes place in the Arctic on solid land or in the open sea, conventional methods and accepted techniques can be used in combatting it. In areas with sea ice a cleanup can be substantially more complicated. For example, floating ice can be drawn toward the blowout center itself and become dirtied with oil before it floats farther. In addition to this, the ice itself will hamper the cleanup work. Because of the pressure, the oil can also be pushed up onto the surface of the ice. In addition, it can freeze fast in pockets under the ice and in this manner be transported relatively unchanged over great distances. Distances of up to 1000 km are estimated in the report. Oil spills in perennial pack ice can likewise behave in a manner which offers few opportunities for effectively combatting them, and it can take several years before this oil is completely released from the ice.

Investigators at SINTEF point out that already today there exists collection equipment for oil spills which is adapted to cold areas and which can be put to use with fewer mishaps, but generally one can say that the low temperature, frequently little light, problematic ice conditions and almost inaccessible terrain will reduce the chance of being able to carry out successful actions.

Although hitherto no oil blowout has occurred in the Arctic, a great deal of information has been obtained regarding what biological consequences discharges in this area can have. This information is derived from, for example, reports on oil spills from boats in icy waters, some experiments with smaller spills and data from toxicity tests and general biological circumstances.

Vulnerable

The coastal areas in the Arctic are especially valuable in terms of fauna and it natural to count on the fact that with time they will also be of increasing importance for tourism.

There are a number of different types of shores in the Arctic regions, and the consequences of oil pollution will be somewhat different from type to type. Therefore it is stressed in the report that in cleaning up these areas which methods are selected can be completely decisive. On some types of shores oil spills quite simply cannot be cleaned up, at least not by mechanical means. This can apply to flat muddy shores, tidal flats, marsh and delta areas, etc. Therefore these must be protected from oil pollution.

A manual cleanup of especially vulnerable types of shores is not only desirable, but in many cases the only possible kind, it states in the report. However, so great a work effort is required that this method seems to be less of current interest under Arctic conditions. Here it will generally be simpler to resort to chemical agents, but there is every reason to assume that such agents will have negative consequences for life in the shore region, and to no lesser extent for the natural environment.

Microbes

Another possibility which the investigators mention is attempts to increase the so-called microbial breakdown of oil. This is a method which can become certainly important in the future, but there still remain much research and further development of the technology before it can be utilized in practice.

As an example of the uncertainty today's planning of an Arctic oil safety strategy can be characterized by, in the SINTEF report one arrives by way of conclusion at the central question of to what extent prospective oil activity in the Arctic should take place in the winter or in the summer season.

Special Biological Features

That the physical Arctic environment will cause more human errors and more material failure during oil recovery than in southern areas is most probable, and this will naturally be of greatest relevance in the winter and in the polar nights. The opportunities for an effective oil cleanup will also be fewest then. On the other hand, there is no doubt that the biological consequences of oil spills will be greatest in the summer.

This situation illustrates well that the Arctic is dominated by special physical and biological features which are not prominent to the same extent in the temperate zone. Norwegian oil safety preparedness should therefore be adapted to reality in the Arctic, it is stated finally in the new SINTEF report.

8985

CSO: 5000

QATAR-FRANCE AGREEMENT IN SOLAR ENERGY FIELD

Doha Al.-'URUBAH in Arabic 13 Mar 80 p 8

[Excerpts] Qatari Minister of Finance and Petroleum Shaykh 'Abd-al-'Aziz ibn Khalifah Al Thani and French Minister of Industry Andre Giraud have signed a protocol for cooperation in the field of solar energy and environmental protection. Its purpose is to bring about scientific, technical, and economic cooperation in the field of solar power and cooperation in the field of contamination and environmental protection procedures.

Under the agreement, France is to provide Qatar with the latest knowledge that science and technology have produced in the field of solar energy.

The agreement provides for support for the generation of electricity and desalination by means of solar energy and for the study of applications of solar energy in air conditioning, heating of water, refrigeration, and lighting. It also provides for the construction of installations for studying sources of contamination and the proposal of procedures to protect the environment.

During the current year, France is to send a mission to Qatar to acquaint Qatar with French accomplishments and explore possibilities for cooperation to achieve Qatar's program.

CSO: 5000

SWEDISH SCHOLAR BLAMES PCB FOR DECLINE IN NUMBER OF BALTIC SEALS

Helsinki HUFVUDSTADSBLADET in Swedish 20 Feb 80 p 20

[Reportage by Olle Ekstrom]

[Text] New statistics show that the Baltic seal stock is being threatened. Today the Baltic contains about 2,000 gray seals, 10,000 to 20,000 harbor seals and 200 medium-sized seals. In comparison we should mention that in a single year around 1910 we paid bounty to kill 30,000 Baltic seals. The great decline in seal during the 1900's has primarily been due to hunting, but, nowadays, the great killer is PCB, the environmental poison.

"Researchers are quite certain PCB is the villain today," according to the Department of Natural Resources' newspaper MILJOAKTUELLT. It has been established that 50 to 60 percent of all female harbor seals are sterile today and that there is a high percentage of uteral infirmity among both harbor and gray females due to PCB.

Fishing Tackle

In Sweden all species of seal were protected beginning in 1974, while seals can still be hunted in Finland and in the Soviet Union. However, seals are not entirely protected in Sweden either, though they are in principle. A vague paragraph allows professional fishermen to hunt seal.

Many seals get caught in fishing tackle and drown. About one fifth of the seal population dies in this manner, before the young reach 6 months.

Since seal are sensitive to noise and fast-moving traffic, leisure boats and planes play a role.

Eliminate PCB

"What can be done to prevent the complete eradication of seal in the Baltic?"

"Long term we must stop polluting the Baltic," said Staffan Soderberg with the National Museum of Natural History in Stockholm. "The seal eats fish and is thus quickly affected by environmental poisons such as PCB. Since people in the end are also affected, it is important that we eliminate such environmental poisons."

....and Stress

"We must also prohibit all hunting of seals and set aside more sheltered areas for them. At present Sweden has about 20 such areas in the Baltic; the Soviet Union has one and Finland is planning several such areas. These areas are off-limits to the public, either part of the year or all year.

That protects the seal from excess stress. The seal is in a very precarious situation and we must do everything we can until we manage to clean up our waters."

Staffan Soderberg and his colleagues at the Fishing Museum are now studying the seal population. They count and mark seal in order to observe their migratory habits. The study is being made in cooperation with other Baltic states, all except East Germany, which has decided not to participate, according to Stefan Lundstrom's article in MILJOAKTUELLT.

8952

CSO: 5000

AUSTRALIA

LEADING MICROBIOLOGIST WARNS ON CANCER-CAUSING CHEMICALS

Canberra THE AUSTRALIAN in English 14 Feb 80 p 3

[Report by Tim Pankhurst]

[Text]

INDUSTRY must urgently develop extensive safety tests on chemicals to stop the marketing of possible cancer-causing agents, a leading microbiologist warned yesterday.

The senior lecturer in microbiology at Melbourne's La Trobe University, Dr Donald Macphee, said local companies were often reluctant to properly assess the safety of drugs, food additives and chemicals.

He said the implications of this disinterest were extremely worrying as an estimated 500 to 1000 new chemicals come on the market every year.

Dr Macphee, who has campaigned for five years to alert governments and manufacturers to the dangers of untested chemical development, is

also frightened of genetic defects in future generations.

He said some chemicals considered unsafe in Europe and the US were marketed in Australia.

"One widely-used insecticide has been known to be mutagenic (causing genetic abnormalities) for 12 years."

Even when toxicological reports were provided by overseas laboratories, many Australian companies lacked scientists with sufficient expertise to interpret them, he said.

The medical risks were appreciated overseas, but were not taken seriously enough in Australia.

Dr Macphee said that even when risks were identified, Australian governments were slow to react.

He said federal and State governments promised to introduce a birth defects register following doubts about the safety of the herbicides 2,4,5-T and 2,4-D, but 18 months later they had still not acted.

AUSTRALIA

POLEMICS OVER EFFECTS OF HERBICIDES CONTINUE

Queensland Government Position

Brisbane THE COURIER-MAIL in English 23 Jan 80 p 3

[Excerpts] State Cabinet yesterday agreed to intensify Health Department monitoring of birth defect causes and their possible link with chemical sprays 245-T and 24-D.

But it stood firm on its decision last Tuesday not to order any new investigation.

The Premier, Mr Bjelke-Petersen, said all Ministers, including the Health Minister, Sir William Knox, said they were convinced from previous investigations and reports that there was no link.

He said Sir William had suggested a general investigation covering the whole state.

But Cabinet agreed that such an investigation would only cover the same ground as all previous investigations in Australia and overseas, as no new evidence was available.

If any new information came up, Cabinet would look at it.

The Premier said the question of 245T and 24D had been built up into an emotional issue, particularly through the media, "to a point that can never be substantiated and has never been substantiated despite extensive and deep investigation in many countries."

Mr Bjelke-Petersen accused the Australian Medical Association of "jumping on the bandwagon" of the highly emotional issue, in ordering its own investigation.

The Australian Democrats state chairman, Mr Mike West, said birth abnormalities in the Cairns area could be at one of the world's highest levels.

Queensland Position Scored

Source: THE AGE in English 4 Feb 80 p 9

[Editorial: "More Questions on Herbicide"]

[Text]

OUT of 57 births in 1976 in the Mossman area, north of Cairns, four were stillborn while a fifth, a mongol child, survived after a bone transplant. The normal incidence for such abnormalities is one in a thousand live births. How can this variation be explained? Was it mere coincidence? Or is the excessively high proportion of abnormalities related to the widespread use of the controversial herbicide 2,4,5-T by cane farmers in the district? Two years ago the same kind of questions were being asked about a cluster of child deformities and birth defects in the Yarram district in Victoria. After a good deal of hesitation the Victorian Government finally appointed an inquiry which concluded that there was no definite link between the abnormalities and the two herbicides in question — 2,4-D and 2,4,5-T.

In Queensland the Government has refused to go as far as that. None of the Mossman women who lost their babies in 1976-77 (after which time the practice of spraying crops by air ceased) has been interviewed. Nor have health officials been impressed by the documentary evidence collected by Mossman general practitioner Dr. Wendy White, whose interest in 2,4,5-T dates from 1976 when she miscarried a headless foetus after previously giving birth to two healthy children. Dr. White says that early in her pregnancy she was

accidentally sprayed while driving her car in the district. The Deputy Premier, Dr. Edwards — Health Minister at the time — has described her as being "given to rash statements". The Premier, Mr. Bjelke-Petersen, proffered his own explanation for some of the abnormalities in the area. It was not 2,4,5-T, he says, but VD among Aborigines in the district — although he couldn't bring himself to use the term.

Not the least appalling feature of the State Government's stand is its blank refusal to consider either the facts of the case or the evidence which people like Dr. White have gathered. They do not claim to have a watertight case against 2,4,5-T. They do not claim it was responsible for the abnormalities. All they say is that on the evidence there could well be a link between the two, and that it is the Government's duty to investigate whether this is so or not. The AMA, which has decided to institute its own inquiry, may produce fresh evidence to persuade the Government to change its mind. The initiative should have come from the Government in the first place, though. The Queensland public is concerned — as are many Australians — about the short and long-term effects of poisons like 2,4,5-T. The Government should be taking what steps it can to allay that concern. It has nothing to lose but its pride.

1970: 1000

STATE TRANSPORT MINISTERS STUDY VEHICLE EMISSION CONTROLS

Warning on Lead Content in Body

From THE WEST AUSTRALIAN in English 2 Feb 80 p 18

[Text]

SYDNEY: A report prepared for the Federal Science and Environment Department says that lead emissions from motor vehicles, if left uncontrolled, might cause a 30 per cent increase of lead levels in the human body by the end of the century.

The report says: "The results show that the levels of annual lead emissions are likely to double 1973 values by the early 1990s, if no control measures are implemented."

Exhaust lead filters, improvements in fuel economy and reduced use of vehicles could not give a long-term reduction in lead emissions, it said.

But the lowering of lead content in fuel would give a sustained reduction.

The report was prepared by the air-quality division of the department.

It conflicts with the Federal Government's proposals to increase the lead content in petrol to 0.65 grams a litre as an energy conservation measure.

The Prime Minister, Mr Fraser, announced the lead increase proposal in his energy statement in June last year.

CONFRONTATION

His proposal led to a confrontation with the NSW Government which has directed that the lead content of petrol in NSW be reduced from 0.45 grams a litre to 0.4 grams this year.

The NSW Minister for Planning and Environment, Mr Landa, said at the time that the Commonwealth proposal was "Recklessly irresponsible."

The State Government would not permit an increase in lead in petrol in NSW.

The Australian Trans-

port Advisory Council, comprising Federal and State Transport Ministers, will discuss the lead issue when it meets in Adelaide next Friday.

The council will consider a report from a sub-committee which has been considering the lead and car emission controls as well as a case presented by the oil industry supporting increased lead content in petrol.

The NSW Health Commission has supported calls for a reduction in the lead content of petrol, describing it as a major source of lead in the body.

Precautions were needed when lead in blood levels rose to 25 to 35 micrograms the commission said.

Decision on Lead Content Deferred

Melbourne THE AGE in English 9 Feb 80 p 4

[Report from Nigel Wilson]

[Text]

CANBERRA. — Federal and State transport Ministers yesterday deferred for at least a year any decision on removing more lead from petrol.

In the process they halted any quick move towards lead-free petrol in Australia.

The decision is a victory for the oil industry which in recent months has mounted a strong campaign against stronger emission controls on the basis that they are energy inefficient.

But the transport Ministers meeting in Tanunda, South Australia, heard that New South Wales still intended to go ahead with stronger emission controls on car engines in 1982.

In reality, this means that all Australian new cars will have to meet the standard of emitting less than 1.75 grams of lead a litre for each kilometre travelled.

The most significant aspect of yesterday's Ministerial meeting on emissions was that a highly optimistic study from the Australian Transport Advisory Council's committee on motor vehicle emissions was sent back for further work.

This said that studies to date showed that unleaded petrol combined with an exhaust hydrocarbon emission standard twice as stringent as that proposed by NSW would save energy and be cost-effective.

CSO: 5000

WEST AUSTRALIA REJECTS BAUXITE INQUIRY DEMAND

From THE WEST AUSTRALIAN in English 13 Feb 80 p 4

[Text] The WA Government has rejected a call by the president of the Australian Wildlife Preservation Society, Mr Vincent Serventy, for a royal commission into bauxite mining in WA's jarrah forests.

The Minister for Forests, Mr Wordsworth, described the proposal as ridiculous.

He accused Mr Serventy, a WA-born author and naturalist, of grandstanding for the benefit of his limited views on the future of WA and its forests.

Earlier, Mr Serventy told a press conference, that a royal commission would provide an independent umpire to resolve public doubts about bauxite mining.

Neither the State Government nor the Opposition appeared to be concerned about an inquiry, he said.

The Premier, Sir Charles Court, had refused to sanction a royal commission on the ground that the bauxite industry had already been sufficiently investigated.

The Leader of the Opposition, Mr Davies, had refused to commit himself.

"This is not good enough," Mr Serventy said. "We don't suggest mining should stop but a royal commission would find out the position."

Mr Serventy, who was a speaker at the Campaign to Save Native Forests rally at the Perth Town Hall last night, said the AWPS had re-

ceived information that suggested that the South-West forest could face the greatest ecological disaster in Australia through disturbances caused by mining and salinity in the water terms.

"Perth has the saltiest water of any Australian capital city," he said.

"If there is a risk we should always go on the side of caution.

"Australia has great deposits of bauxite and we should not mine in environmentally sensitive areas."

PM PRAISED

Mr Serventy praised the actions of the Prime Minister, Mr Fraser, in appointing high-level inquiries into environmental issues of public concern and abiding by the umpire's decision.

The Federal Government, however, could not intervene in WA because bauxite mining in the Darling Range was a State matter.

"From what I have seen of Alcoa this company, like many other industries in Australia, has been more responsible than government," he said.

"You cannot ask Alcoa to do more than the government wants it to do.

"It is doing all it can in

the light of present knowledge.

"It has spent big sums on research but it is dealing with a fragile environment."

OUTLANDISH

Mr Wordsworth said that Mr Serventy's doomaday statement on the future of the forests had been made by a man who should be in a position to know that his claims were outlandish.

"Possibly, Mr Serventy has not taken the trouble to inform himself fully on government programmes and commitments for the protection of forests, the protection of water catchments which are vital to our future, and the control of salinity," he said.

"The Government is committed, as are the bauxite mining companies, to make a special project of assessing whether bauxite mining on the eastern scarp of the Darling Range can be carried out in such a way as to prevent unacceptable contamination of water supplies.

"It is not known whether there will be a salinity risk as mining moves east, but the research will be detailed and thorough."

Mr Wordsworth said that the Government's

multi-use management techniques were added insurance that forests would be preserved for future generations.

The management practices included:

- Continuing research into eliminating dieback.

- Planting rapidly-maturing softwoods to reduce the pressure on the hardwood cut.

- Controlled cutting and replanting programmes.

- Full environmental research and safeguards where bauxite was being mined.

- Declaration of quarantine areas to prevent the spread of dieback.

Mr Wordsworth said that Mr Serventy advanced no reason why mining could be the greatest ecological disaster in Australian history.

SUPPOSITION

His statement appeared to be based on supposition. It ignored all of the studies carried out at government and company expense to ensure that bauxite mining was carried out with appropriate ecological safeguards.

Bauxite mining was carried out under legislation passed by the WA Parliament. The most re-

cent amendments had been debated in 1978 when ample opportunity was provided for all aspects of various operations to be considered.

Alcoa's environmental manager, Mr George White, said last night the company had spent about \$1 million on research into the effects of bauxite mining.

Its operation had been subjected to the most extensive investigations and public discussion of any project in WA.

The investigations had been carried out by highly-qualified technical people from the CSIRO, the State Government, the universities and Alcoa's own staff.

Presumably a royal commission would review this material, he said.

AUSTRALIA

BRIEFS

SOUTHWEST WATERWAYS STUDY--State Government authorities yesterday declared that pesticide levels in waterways in the South-West were not a threat to public health. An environmental report released by the State Government yesterday called for a regular monitoring of pesticides in the Collie, Brunswick and Preston Rivers. The report on the Leschenault Inlet management programme done for the Waterways Commission said that DDT and dieldrin in the Preston River often exceeded recommended levels--DDT by three times and dieldrin by 20 times. None of the readings for the other rivers--which are sampled by the Public Works Department--have exceeded the level. It says that the safe level for drinking water of 0.1 micrograms a litre has never been exceeded. The Leschenault report highlights the need for a study to be made of pesticide levels in fish and crustaceans in the inlet. [Excerpts] [Perth THE WEST AUSTRALIAN in English 25 Jan 80 p 9]

PARRAMATTA FISH DEATHS--The detergent manufacturer Reckitt & Colman Australia Ltd is to be prosecuted for allegedly discharging about 1600 litres of a detergent concentrate into the Parramatta River. The State Pollution Control Commission, which will prosecute the company under the Clean Waters Act, believes the discharge contributed to the deaths of hundreds of fish on February 2 and 3. [Excerpt] [Sydney THE SYDNEY MORNING HERALD in English 14 Feb 80 p 2]

CONSERVATIONISTS LOSE CASE--The Australian Conservation Foundation has failed in its attempt to mount challenge in the High Court against the proposed Japanese tourist development at Yeppoon, in Queensland. By a 3-1 majority, the Full Bench dismissed with costs an appeal by the foundation against a ruling by Mr Justice Aickin that it had no standing to bring its proposed action. The case was decided by Mr Justice Gibbs, Mr Justice Stephen, and Mr Justice Mason with Mr Justice Murphy dissenting. Mr Justice Gibbs said the foundation had about 6,500 members drawn from all Australian States and territories. It tried to influence national policy on matters affecting the environment. He said the foundation claimed the Iwasaki proposal would have a detrimental effect on the environment. Mr Justice Gibbs said the provisions of the Federal Environment Protection (Impact of Proposals) Act of 1974 did not create private rights. [Excerpts] [Sydney THE SYDNEY MORNING HERALD in English 14 Feb 80 p 11]

CSO: 5000

DEFORESTATION THREATENS EXISTENCE OF HILL PEOPLE

Kuala Lumpur BUSINESS TIMES in English 23 Jan 80 p 19

[Article by Gopa Joshi]

[Text]

LAST year woodcutters from the sacred northern Indian temple of Badrinath went out one day to gather wood fuel and were stunned to find hundreds of women guarding the trees. They were part of the *Chipko* (literally meaning 'hugging the trees') movement in the Bhyudar Valley of Uttarakhand which is trying to prevent the wholesale denuding of the Himalayan hills.

The problem of deforestation is serious. The widespread felling of trees and the ecological imbalance this is believed to have brought about in the Himalayas is seen as a major cause of the serious flooding in the region, the threatened extinction of many wild species of plant, soil erosion and the drying up of natural springs. Experts studying the problem say that these phenomena have combined to threaten the very existence of the hill people, forcing many of the youth to leave their homes in search of work in the plains.

A botanist from Dehli University, Dr Virendra Kumar, while studying the effects of the severe deforestation by large commercial contractors, also found that the historical and religious town of Joshimath, was in fact sinking.

Since 1970 the town has been flooded several times and landslides and subsidence had further threatened it. The area up until a few decades ago was dense forest.

Indeed one of the major problems caused by deforestation has been continuous and severe flooding causing deaths, the devastation of crops and cattle and the silting up of canals and rivers.

Some hill areas have become very sensitive and even mild rains cause severe landslides. These losses have been increasing yearly.

The irony of the situation is that the government is failing to tame these rivers which were once so effectively contained by the forests, a few decades ago.

The deforestation is also believed to be causing the extinction of many wild species living in the forests. Many of them have been killed by the contractors felling trees to make quick money. The denuding of the Himalayas, has also led to the drying-up of natural springs, once the source of drinking water for the local people.

Faced with these dangers, the hill people started resisting the felling of trees under the leadership of Mr C.P. Bhatt and a local people's organisation Dasholi Gram Swarajya Sangh in

1973. In 1974, at Reni, the women saved 2,461 trees of their forest by getting in the way and "hugging the trees" to the appointments of an expert committee on forests in Reni.

Chipko had scored its first major success and became a real mass movement.

From Garhwal, the movement spread slowly to the Kumaon region, from the rural masses to students. And the scope of the Chipko movement widened. Protection and prevention, led to the creation of new forests in sensitive areas.

In June 1975, the Sangh planted 5,000 saplings in Gopeshwar.

The next step was to contain the sinking of Joshimath by planting trees. This was probably the longest and the most intensive campaign organized by the Dasholi Gram Swarajya Sangh. Altogether 14,000 saplings were planted and a 1,500 metre-long wall was built to protect them from grazing.

In February 1978 the students of the government college, Barinag, planted 4,000 trees in the Quasari forest in Barinag. Chipko activist, Mr Bhandari, and a friend started a willow plantation campaign. Travelling by bicycle, they started from Birahi Village and went to Nandprayag, Rudraprayag and

Rishikesh. On the way, they planted willow saplings on the unstable river banks in an effort to control erosion and landslides. So far about 3,000 saplings have been planted on the hills and banks of the Garur Ganga.

A main feature of these camps has been the integration of people of all castes, communities and professions, in itself is a great achievement in a caste-ridden society like India.

At the camps, besides planting trees discussions are held on such subjects as the *Role of Uttarakhand people in maintaining the ecological balance* and on local problems concerning the construction of roads or the expansion of educational facilities in remote villages. The discussions are aimed at educating the people about the importance and relevance of afforestation to their own standard of living.

The purpose of the Chipko is not only to save the trees, but also to min-

imise the difficulties of the local population. The destiny of the local people is tied to their forests, but today, the hills offer fewer jobs for its people. More and more youth are moving to the plains in search of work and in the absence of the men-folk, the burden of managing the home front falls on the women.

In some villages even the tasks of ploughing the fields and performing funeral rites, usually the exclusive domain of the men are being performed by women. This has also meant that although the women have the campaign against the tree-fellers the demands of home and village life have kept them from attending the important planting camps.

Mr Bhatt decided that the only hope for the hill-people was a comprehensive programme of forest-farming. In 1978, 120 hectares of forest land were distributed among 120 people of Gopeshwar for forest-farming according to a scheme formulated by the government, the villagers and Ban Pan-chayat, Gopeshwar.

Dr Swaminathan, secretary to the Ministry of

Agriculture, associated himself with the Chipko movement visited the area and was so impressed by its success that he wanted to expand it further with the help of voluntary organisations like Dasholi Gram Swarajya Sangh.

In many areas the government has initiated a programme of fruit tree planting but run into several problems. The backbone of the hill economy are illiterate women who need to be educated about the advantages of fruit production as opposed to the traditional grain production.

The problems remain immense. The bare hills have been overgrazed and there is no effective and coordinated government plan to restore the forests of the Himalayas.

The smallscale forest farming started by sangh and Mr Bhatt has simply tackled the tip of a huge iceberg. Mr Bhatt believes that only a concerted government campaign and action will prevent the large contractors from further damage to the region and the livelihoods of thousands of people. — Third World Media

LAND WITH 30 PERCENT SALINITY RECLAIMED, SURVEY SHOWS

Islamabad THE MUSLIM in English 10 Mar 80 p 7

[Text]

LAHORE, March 9: Over 30 per cent salinity hit irrigated land in a surveyed area of two crore acres, has been reclaimed during the last 20 years. A spokesman of WAPDA's Survey and Research Organization said here today.

He said WAPDA has completed the soil salinity survey of about four crore acres of irrigated land all over the country to determine the extent and trends of soil salinity. Report of the survey of two crore acres has already been prepared which reveals that at present 30 per cent of the total surveyed land is affected by salinity against 45 per cent in the 1960s, he said.

The factors which have contributed towards combating salinity include WAPDA's Scarp schemes, installation of private tubewells,

sufficient water releases from Mangla and Tarbela Dams and considerable rainfall during 1973-75 period, he added.

The spokesman said WAPDA had also completed aerial photography of about 80,000 miles of canal command area. Aerial photography was essential for soil survey, particularly in view of the rapid changes which have occurred in the landscape during the last two decades, he added.

WAPDA's Survey and Research Organization aims at analysing water logging and salinity conditions, its effects on agriculture and the related data besides carrying out research to find solutions to the twin problem through improved farm water management practices.—APP

CSO: 5000

CONFERENCE DISCUSSES ENVIRONMENTAL PROTECTION

Guangzhou NANFANG RIBAO in Chinese 1 Dec 79 p 2

[Article: "Carry Out Environmental Protection and Accelerate the Four Modernizations"]

[Text] The environmental protection office of the Guangdong Province Revolutionary Committee and the Guangdong Province Environmental Science Association held a joint conference recently to study the "Environmental Protection Law of the People's Republic of China (trial)" promulgated by the standing committee of the Fifth National People's Congress, to combine the practice of environmental protection work in our province, to study how the environmental protection law can be realistically implemented, and to advance the work of environmental protection.

Participating in the conference were the directors, chairman, and vice-chairman of the Guangdong Province Environmental Science Association, concerned specialists, scholars, and representatives of concerned departments. Comrades attending the conference uniformly agreed that the formation and promulgation of the "Environmental Protection Law of the People's Republic of China" expresses the aspirations of the broad masses of people and represents their interests. It legalizes our environmental protection work, systematizes it, establishes an ecological balance for the protection of our natural environment, eliminates environmental pollution, protects the health of the people, promotes socialist modernization, benefits future generations, and will have a great expeditious effect.

Comrades attending the conference, with reference to the reality of environmental protection work in our province, discussed the problem of how to implement the environmental protection law thoroughly and conscientiously. The comrades uniformly pointed out that for the past few years, the turmoil and destruction of the ultra-left line of Lin Biao and the "gang of four," as well as the deficiencies in our own work, had resulted in some units that fail to take environmental protection work very seriously, making noise pollution and the "three wastes" of industry an extraordinarily serious problem in some parts of our province, such as Guangzhou, Maoming, and Shaoguan. At the same time, destruction of forest resources has caused erosion of land and water in some areas, and changes in climate that affect agricultural production. Everyone

felt that the first order of business was to publicize the environmental protection law, to make it known in every household, set it deeply in the hearts of the people, and establish protection of the environment as a social habit that is everyone's duty. For the successful implementation of the environmental protection law, it was proposed that government departments on provincial, prefectural, municipal, and county levels all assign personnel and establish corresponding organizations to manage this work. The courts, the procuratorate, and the public security law enforcement agencies must investigate the legal responsibility of units and individuals who seriously violate the environmental protection law. We must truly strive for having a law that must be followed, enforcement of the law that must be strict, and violations of the law that demand punishment.

The specialists and scientific workers who attended the conferences also expressed their opinions about developing scientific activities around environmental protection, initiating environmental protection work, and formulation of detailed rules and regulations for environmental protection.

9284

CSO: 5000

ENFORCEMENT OF ENVIRONMENTAL PROTECTION LAW DEMANDED

Guangzhou NANFANG RIBAO in Chinese 1 Dec 79 p 2

[Article: "Implementation of the Environmental Protection Law Must Be Done Conscientiously"]

[Text] At present, environmental pollution is relatively serious in our province. Guangzhou, Shaoguan, Maoming, Shantou, Zhanjiang, Suiqi, and some other areas all suffer from noise pollution and the "three wastes" of industry. The waters of Nan Hai and the Zhu Jiang, as well as the soil and agricultural crops in some areas, suffer from varying degrees of pollution. In some areas the forests have been denuded to the extent that water and soil have been lost and agricultural production is affected. All of this has already jeopardized socialist construction and the health of the people and thrown the ecology of the whole area out of balance. The masses urgently demand the conscientious implementation of the "Environmental Protection Law of the People's Republic of China (trial)" passed in principle by the 11th Session of the Standing Committee of the Fifth National People's Congress, and the gradual improvement of pollution by noise and the "three wastes" of industry in our province.

The environmental protection law is the first law on protection of the environment in the history of our country. It embodies the will of the people. An important point of a law is that it must be enforceable. Therefore, everyone must observe the environmental protection law, and no one may violate it; all groups, departments, and units must implement it thoroughly and conscientiously without exception. There must not be allowed any more destruction of natural resources, excessive cutting or denuding of forests, or serious pollution that goes uncontrolled. We must have legal investigation of the responsibility for behavior that violates the environmental protection law, pollutes the environment, and destroys the ecological environment. There must be investigation of administrative responsibility, economic responsibility, and even criminal responsibility under the law with regard to the leadership or directly responsible persons in any unit that seriously pollutes and destroys the environment to the extent that it causes injury to someone or creates a serious loss. We hope that those units that are still seriously polluting the environment will correct their actions by immediately formulating practical remedial measures. If everyone conscientiously implements the environmental protection law, the face of the environment in our province will certainly change rapidly.

CONFERENCE ON ENVIRONMENTAL PROTECTION MANAGEMENT HELD

Beijing GUANGMING RIBAO in Chinese 6 Mar 80 p 1

[Article by Liang Heng [2733 5899]: "Put Management at the Forefront of Environmental Protection Work; National Conference on Information Exchange in Environmental Protection, Economics and Law Held in Taiyuan"]

[Text] Delegates to the National Conference on Information Exchange in Environmental Protection, Economics and Law strongly pointed out that to protect the environment and maintain the ecological balance the entire nation must develop a sense of urgency. While controlling pollution it must undertake management to closely unite with production realities to establish an environmental protection system which suits China's special conditions and which relies on economic, administrative and legal devices to rapidly bring about controls.

This information exchange conference was held in Taiyuan [1132 0626] from 25 February to 1 March by the China Environmental Science Society, The China Technical Economy Research Society, and the China Management Modernization Research Society. The 125 experts, scholars and environmental protection workers who came from all over China conducted inquiries into some current urgent problems in China's environmental protection.

The conference pointed out that although China has made relatively great accomplishments in environmental protection in the last few years, generally speaking, environmental pollution and damage to natural resources is still quite severe, and in some prefectures has even increased. Since Liberation China has established over 300,00 enterprises, most of which lack environmental protection measures, and this is the main source of China's environmental pollution. In 1979 the discharge rate of waste water, waste gas and waste sediments was increased by 8 percent, 5.6 percent and 3.6 percent respectively over that of 1978. In some industrial cities the underground water has steadily fallen because of excessive drilling, in some places

by as much as 1/2 to 1 meter per year. The experts warn that from now on decisive measures in environmental protection must be taken, that the masses must be relied upon and motivated to manage the environment.

Many comrades feel that since environmental protection work is an economic endeavor it should be operated according to economic rules. Environmental protection is a part of the national economy along with production, exchange and distribution. Therefore, the cost of the final product ought to include the expenses of environmental protection. Accordingly, in addition to the usual propaganda, appeals and administrative requests, environmental protection work should also make use of the strength of economic pressures. In short, there must be a unification of environmental protection, completion of the task of controlling the "three wastes of enterprise production, a decrease of product costs, and an increase in staff and worker economic benefits. Only when these elements are all united can the enthusiasm of the enterprises and masses be motivated toward pollution controls. Last September Suzhou city placed a fee on the discharge of pollutants and has already had gratifying results. In the past the Suzhou Huaxheng [5478 4141] Paper Mill discharged 35,000 tons of waste water daily, but after a fee was placed on discharged wastes this plant quickly completed a crash waste control project and now recovers two tons of fiber particles from the waste water daily at a profit of 216,000 yuan per year and with a daily reduction of 10,000 tons of waste water.

The comrades attending the meeting felt that environmental laws are a main prop in environmental management work. Reliance on economics, education and propaganda alone, without the strength of legal devices, will not produce effective progress in environmental work. Last year China promulgated the "(Trial) Environmental Protection Code of the Peoples' Republic of China" which indicates that our environmental protection efforts have already entered the legal stage. In the future there must be progressive development of research and work in this area, with gradual strengthening of an environmental code with laws that can be followed and under which business can be done.

This information exchange conference was an important one for the world of environmental science in China. This conference exchanged the results of this years' research and local environmental protection work experiences, and finally held an election which resulted in the formation of the All-China Environmental Management, Economic and Legal Association, under the directorship of Chen Xiping [7115 6007 1627].

SOME SUGGESTIONS ON ENVIRONMENTAL PROTECTION WORK

Beijing GUANGMING RIBAO in Chinese 6 Mar 80 p 2

[Article by Liu Pei'en [0491 0160 1869]: "Some Suggestions on Environmental Protection Work"]

[Text] On a recent trip to Wuzhou [2745 1558], Yulin [3768 2651] and Guilin [2710 2651] I got the deep impression that environmental protection work has many problems and that there will be difficulties in developing the work. There are but slight results in controlling the sources of pollution which have long been with us and new sources of pollution have developed.

Why hasn't environmental protection work been able to develop smoothly? Speaking from within the environmental protection system, I believe that the problems laid out below are worthy of discussion:

1. Should there be reliance on human control or on legal control? Although an environmental protection code has already been promulgated there is no way to implement it and in actuality it can only function as propaganda. At present, even criticism is subject to permission so why bother to even discuss the rest?

2. Are the organs of environmental pollution organizations for enforcing the law or are they organizations for control of the "three wastes"? This problem requires clarification. At present, capital for control of the "three wastes" is distributed by environmental protection organs while the other concerned departments are only uninvolved observers. When they need funds they are very enthusiastic and vocal, but once they have their money they lose their enthusiasm for controls. Last year only 11 percent of the environmental pollution control funded by Guilin was completed. The reasons for this have many facets and they can be investigated in detail, however they are clear proof that it is impossible for the environmental protection organs alone to manage control of the "three wastes."

3. The problem of the organizational system of the environmental protection organs. Our present environmental protection system is weak and powerless. For example, the Guangxi Zhuang Autonomous Area environmental protection bureau has not yet been established, so an office of environmental protection composed of prefectural and municipal elements functions in its stead. How can such an organizational system hope to develop this work?

4. The problems concerning the organization of the environmental protection system. When other systems were established the concerned departments of the Party Central Committee immediately informed the lower levels of their organizational system, environmental protection has been the only exception. None of the responsible bureaus or large and middle scale plants and mines have environmental protection organs. How can a limited number of environmental protection cadres take on this huge task all alone? There also are no special capital construction expenses for scientific research in environmental protection or for a network of monitors, so how is such work supposed to be developed?

It is hoped that all leadership levels will promptly study the above problems to reach the proper solutions.

11582

CSO: 5000

SERIOUS ENVIRONMENTAL POLLUTION IN YANTAI

Beijing GUANGMING RIBAO in Chinese 6 Mar 80 p 2

[Article by Wu Guoguang [0702 0948 0342] and Wang Juntian [3769 6874 3944]: "Serious Environmental Pollution in Yantai"]

[Text] Not long ago we paid a visit to Yantai [3533 0669] prefecture in Shandong province where we noted with great interest that Jiandong [5231 2639] peninsula, originally famous for its clear air and beautiful scenery, following the rapid developments in industrial production in recent years, especially the quick rise of the five small industrial enterprises, is increasingly suffering from the shadow of environmental pollution. According to determinations made by the concerned departments, the industrial areas of Yantai have dust fallout 16 times greater than that permitted by national standards, while in the residential areas it is from 2 to 5 times greater than national standards. The prefecture's waterways and ports have suffered varying degrees of pollution, as some common water products such as jellyfish, shrimp and miantiao [7240 2742] fish have already disappeared while some clams are no longer potable. The water product resources are declining. The water resources of many counties and municipalities are also endangered or have become polluted. Pollution by dangerous gases from the prefecture's 120 small phosphorus plants has resulted in an annual 5,000 mu reduction of farm and orchard products, so the state pays annual damages of 400,000 yuan to the farmers. In short, this prefecture's pollution problems can no longer be countenanced and can no longer go unsolved.

As for the reasons why the environmental pollutions is so severe, in addition to the destructive activities of Lin Biao and the "gang of four," the following factors are also present:

1. A lack of concern for the social effects of pollution. To this day the importance and urgency of environmental protection work has not been fully realized by some leading comrades. Some leaders are only concerned with production and are not concerned with pollution. The masses criticize this saying,

"The leading comrades do not miss a night of grasping production value, but whole years go by without pollution control." There are some enterprises which are not evaluated as Daqing style enterprises because of noncompletion of one of the eight economic indicators or because of the deaths of two people, however there are some enterprises which have polluted whole rivers and endangered the health of millions of people, yet this has not affected their evaluation as Daqing style enterprises. In 1978 one county paper mill discharged waste water into the nearby ocean poisoning over 466,000 jin of wenge [2429 5756] clams valued at over 82,000 yuan. The masses strongly protested and the local environmental protection department made repeated suggestions to the concerned leadership departments, but because this mill's production was quite successful, it still was evaluated as the all-province Daqing style enterprise.

2. Plans are not put into effect. First, the planning departments haven't any specialists responsible for checking on things. Whenever plans are submitted to the higher levels, the parts concerning the construction of pollution controls are always eliminated. Next, the construction departments haven't anyone to check on matters. The design and construction of environmental protection projects can never be arranged, and moreover new and expanded construction of major projects lacking pollution control installations are permitted to carry on their usual labor and production efforts.

3. The environmental protection organs have not been perfected. This prefecture has 16 counties and municipalities in 6 of which organs specializing in environmental protection have been established, while in the rest the duties are carried out by representatives in other posts. In fact, however, these representatives do not carry out their duties. Although these counties have established environmental protection organs, they still have not risen to the leadership level of carrying out overall planning and motivating others to do environmental protection work.

4. Beginning in 1975 the state has provided Yantai prefecture with a total of 6.53 million yuan for control of the "three wastes, but by the end of last year only 2.98 million yuan, or 45.6 percent of the capital investment, had been completed (put into effective operation). In 1975 the state gave the Yantai Printing and Dyeing Mill almost 200,000 yuan to control waste water discharge, but to date this capital has not yet been used while pollution slowly grows.

5. The environmental protection brigades lack both construction of professionalism and the spread of scientific environmental protection knowledge.

We believe that protecting the national environment and developing production are one and the same thing. To discharge the "three wastes" of industry is dangerous, but to collect them is valuable. The comprehensive management and utilization of the "three wastes" of industry not only increases our potential strength but also is a path to economy. This is especially true in the adjustment of the national economy, for if we do not truly solve the problems of environmental protection, this will create even greater damage and waste of natural resources. Therefore it is hoped that the leaders of all concerned departments, enterprises and units will adopt a spirit of high responsibility toward the people, be serious about environmental protection work, strictly carry out state policies, laws and decrees, and do a good job of carrying out Yantai prefecture's environmental protection work.

11582
CS0: 5000

PEOPLE'S REPUBLIC OF CHINA

BRIEFS

AIR POLLUTION--A prohibition on the operation of unsophisticated motor vehicles that pollute the environment seriously within the Foshan municipal area has been welcomed by the broad masses. Since 1970, the Foshan communications and transportation departments have manufactured a number of unsophisticated motor vehicles powered by diesel fuel to relieve the shortage of transport. Because of deficiencies in their mechanical precision and unclean combustion in the cylinders, these vehicles, when operated, emitted black smoke containing hydrocarbons that affected people's health and seriously polluted the environment, being called "inkfish of the highway" by the people. Early this year the municipal revolutionary committee listened to the complaints of the people, took steps to weed out these unsophisticated vehicles, and determined that beginning 1 October they would be prohibited from operating within the municipal area. According to determinations by the environmental protection department, there was a striking decrease in contaminants along municipal roadways during October. [Text] [Guangzhou NANFANG RIBAO in Chinese 1 Dec 79 p 2] 9284

CSO: 5000

STUDY SHOWS INDUSTRIAL POLLUTION IN ROK SERIOUS

Office of Environment's Survey

Seoul THE KOREA TIMES in English 11 Mar 80 p 1

[Text]

The Office of Environment, for the first time since its opening on Jan. 1, directed city and provincial governments yesterday to take tough administrative measures against firms which had been found to discharge excessive pollutants into the Nakdong River.

OE officials said that Sokpo Refinery in Ponghwa-myon, Kyongsang - pukto, Tonghae Pulp Co. in Onsan, and Muhak Alcohol in Masan had been found to have released great amounts of pollutants far exceeding the permissible level in its eight-day secret inspection which started on Feb. 12.

They said that the OE sent directions to city and provincial authorities in charge to take strong administrative measures such as suspension of operation against the firms.

According to the officials, as much as 1,600 ppm of suspended solid (SS) was detected in waste water released by Sokpo

Refinery. The officials said that the amount was some eight times the permissible 150 ppm.

In the case of Tonghae Pulp Co., 242.9 ppm in chemical oxygen demand (COD) against the permissible 150 ppm was recorded in its waste water.

The bio-chemical oxygen demand (BOD) in water from Muhak Alcohol was found to be around 1,600 ppm, some 11 times the permissible 150 ppm, the officials revealed.

Anti-Pollution Facilities

The OE's punitive measure against the firms were taken because the pollutants from the firms were likely to contaminate severely the Nakdong River and Onsan and Masan Bays as well as underground water in the vicinity due to their poor anti-waste water facilities.

Meanwhile, the Seoul district prosecution arrested three persons yesterday including two executives of food companies for having secretly discharged pollutants into the Han River without operating

anti-pollution facilities at their plants.

Cho Kyu-han, 58-year-old executive director of the Choheung Chemical Co., and Oh Hyon-jong, 27, an engineer at the company, were accused of having released 30 tons of waste water into Torimchon stream, which is a tributary of the Han River.

Prosecutor Ahn Yong-uk said that the Choheung Co., which produces the artificial sweetener saccharin, was equipped with filtering facilities for waste water. But the company did not operate them, secretly discharging the pollutants every night.

Yang Hyon-bong, 28-year-old executive director of the Taeryuk Food Co., was charged with having released excessively contaminated water into the Han River since January this year.

Prosecutor Ahn said four other owners of chemical plants had been also booked by the prosecution on similar charges. They include Chang Se-il, 52, representative of the Seoul Color Co.

Paltang Reservoir Pollution

Seoul THE KOREA TIMES in English 11 Mar 80 p 8

[Text]

The contamination of water flowing into the Paltang Reservoir, a major source of potable water for Seoul and its vicinity, is getting worse because of increasing industrial waste and agricultural chemicals, but government agencies are passing the buck among each other rather than pooling efforts to purify it.

The water pollution in the three major tributaries of the Han River — the South (Nam) Han and North (Puk) Han Rivers and Kyongan-chon stream — is now in a serious state and so is the water in the reservoir, which supplies 1,200,000 tons of potable water to Seoul, Incheon and Songnam cities a day.

The Construction Ministry is responsible for the supply of water to the capital city area. But since the inauguration of the Office of Environment on Jan. 1 this year, the ministry has been withdrawing from the task of pollution control of the tributaries of the Han River.

An official at the Water Resources Bureau of the Construction Ministry said that his office was responsible only

for the intake of water for processing into potable water and the control of water pollution beyond the intake point was the responsibility of the Office of Environment.

On the other hand, Office of Environment authorities hold the view that protection of potable water sources, including the designation of protection regions, remains the job of the Construction Ministry in accordance with provisions of the Piped Water Law.

The Seoul City administration, meanwhile, has stopped its anti-pollution activities on the upper Han River since the establishment of the Office of Environment. It has canceled a plan to procure an automatic water contamination measurement apparatus, which was supposed to be installed on the upper Han River.

Pollution experts said that a comprehensive measure was urgently needed to save the Han River tributaries from further contamination before early next year when the amount of intake from the Paltang reservoir is planned to be increased to 2.6 million tons a day.

CSO: 5000

THAILAND

BRIEFS

EARTHQUAKES IN CHIANG MAI--Light earthquakes shook parts of the northern province of Chiang Mai on Monday [11 February], the weather bureau reported. It said the quakes were measures at four on the Richter Scale. No damage was reported. [Text] [BK130117 Bangkok NATION REVIEW in English 13 Feb 80 p 3 BK]

CSO: 5000

STUDY DETAILS USSR, EAST EUROPE INDUSTRIAL POLLUTION

Oslo AFTENPOSTEN in Norwegian 20 Feb 80 p 5

[Article by Einar Kr. Holtet: "Enormous Environmental Damage in the East"]

[Text] The planned economies of the Soviet Union and East Europe are unsuccessful in the fight against pollution. The result is that millions of people inside and outside of East Europe are being poisoned by exhaust fumes. In Czechoslovakia it is expected that sulfur dioxide emissions will double during the period 1970 to 1985. In 1970 the emissions were already of major magnitude, according to the Swedish scientist Ingmar Oldberg. Exhaust emissions above the maximum permissible limits affect 3.6 million people in Czechoslovakia. And in East Germany lignite production probably results in even greater damage. Poland has similar conditions.

In a series of articles in the periodical INTERNASJONAL POLITIKK Scandinavian experts have examined the environmental problems in the Soviet Union and East Europe. The conclusions drawn are brilliantly clear, in contrast to the air which the inhabitants of the "ideal societies" with planned economies breathe daily.

Ingmar Oldberg, a fellow at Lund University, writes that the environmental problems in Czechoslovakia will probably become worse, since environmentally damaging lignite is to be the nation's future primary energy source.

In industrial areas such as the northern Bohemian lignite area, the Ostrava region, and the large Czechoslovak cities the emission is now intolerably great. In the lignite areas the average longevity of the population is 4 to 5 years shorter than normal. Also damaged are 85,000 hectares [210,000 acres] of forest and 100,000 hectares [247,000 acres] of cultivated fields.

According to Czechoslovak engineer Stanislav Muransky, East Germany emits one-third more sulfur than Czechoslovakia at the same time as the East German people are suffering from the emissions of northern Bohemia.

In Hungary it is not much better. There is smog 20 to 25 days a year in Budapest, and still more in Bulgaria's capital Sofia. The fact that industries in East Europe are more concentrated than in the Soviet Union and are often situated in areas with poor air circulation makes the situation especially serious during the fall and winter months. To counter the problem they began early in the 1960's to build very high smokestacks to scatter the emissions, but obviously this did not correct the situation.

Air pollution is related to the energy structure of the East European countries, which in East Germany, Czechoslovakia, and Poland is entirely dominated by solid fuel--namely coal. The problem is that coal--and especially lignite--contains much sulfur.

Bulgaria seems to be relatively the largest nuclear powered country in East Europe, since it is planned that half of the country's electricity this year will come from nuclear power. But construction has not gone as rapidly as planned. Reports have leaked out of Czechoslovakia that there have been reactor accidents with resulting fatalities and environmental damage.

The East European countries continue to give priority to heavy industry. That means an especially high consumption of energy and much pollution.

The use of private automobiles is increasing in East Europe, in spite of "reliance on mass transportation." And in agriculture pesticides are widely used. In Czechoslovakia 80 percent of all land in production is sprayed with pesticides--partly with aircraft. DDT was first prohibited in Poland in 1975.

Ingmar Oldberg writes, "In certain respects the problems seem worse than in the highly developed industrial countries of West Europe. The tendency is that air pollution is getting worse."

Professor John Sanness believes that the protection of the environment is receiving lower priority in the Soviet Union because of higher demands in the wake of reduced economic growth during the 1980's [sic]. Lenin remains as an obstacle to the protection of the environment, just as the Islamic resurgence in today's Iran is an obstacle to women's rights.

Two collaborators in number 3B of INTERNASJONAL POLITIKK, editorial secretary Nils Norten Udgaard and Professor Ivan Th. Rosenqvist, mention the environmental problems which arise in connection with Soviet plans to change the course of rivers in Siberia.

Udgaard said that the Soviet plans point up the price that the Soviet Union must pay to retain collectivism in agriculture--and avoid drastic agricultural reforms. Udgaard maintains that a centrally directed planned economy is clearly the greatest consumer of nature, as compared with the living standard that these countries produce.

9287

CSO: 5000

LAW ON ENVIRONMENTAL PROTECTION, DEVELOPMENT DEFINED

Warsaw DZIENNIK USTAW in Polish No 3, 11 Feb 80 pp 9-23

[Text] Law Dated 31 January 1980 Concerning Environmental Protection and Development.

The Polish People's Republic ensures environmental protection and its rational development for the general welfare of the nation and creates conditions fostering the implementation of the rights of citizens to receive the full benefits of the qualities of the environment.

In accordance with the above constitutional principles, it is recognized that the following are essential:

--the development of the environment according to the needs of society and the national economy,

--the harmonization of the development of production forces, science and technology with the needs of environmental protection,

--the definition of the legal means for ensuring use of the environment in accordance with social needs,

--the execution of responsibility by state offices and officials, cooperatives, and social and trade organizations with regard to tasks leading toward environmental protection,

--the protection of the environment by every citizen and to this end we do establish the following:

Section I General Regulations.

Chapter 1. General Principles.

Article 1. (1) The law defines the principles of environmental protection and development for ensuring present and future generations favorable living conditions and the principles for the realization of the right to make use of the resources of the environment and to preserve its quality.

(2) The environment in the understanding of the law is the sumtotal of natural elements, particularly the surface of the earth together with the soil, minerals, waters, atmospheric air, the plant and animal world, and also the landscape, both as found in its natural state and as transformed as a result of the actions of man.

Article 2. (1) Environmental protection consists of the activity or abandonment of activity enabling preservation or the restoration of the natural balance essential for the achievement of the goal stated in article 1 paragraph 1. This protection is particularly expressed through:

- 1) the rational development of the environment,
- 2) the rational management of natural resources,
- 3) counteracting or preventing harmful influences upon the environment leading to its destruction, endangerment, pollution, changes in its physical makeup or the character of its natural elements,
- 4) restoring natural elements to their proper state.

(2) The rational management of natural resources of the environment consists principally of:

- 1) making use of resources only within the sphere justified by social interest, in the evaluation of which should be considered, aside from longstanding indicators, a comprehensive cost effectiveness analysis, as well as the significance other than economic of these resources for the balance of nature and the living standard of the people.
- 2) according priority status to ventures enabling the frugal use of resources, particularly with regard to repeated or longterms use in economic processes,
- 3) not allowing the state of the environment to deteriorate.

Article 3. As employed in this law:

- 1) the balance of nature means that state in which there exists a balance within a definite area in the interaction of man, the elements of animate nature and the system of habitation conditions created by elements of inanimate nature,
- 2) natural resources of the environment means those resources of the natural elements referred to in article 1 paragraph 2,
- 3) environmental development means such actions upon the environment as would lead to the achievement of proposed social and economic goals while preserving the balance of nature, and particularly conditions for the regeneration of its resources,

4) sewage means those liquid substances, which when introduced directly or indirectly by means of sewer pipes into the waters or the earth can cause pollution, change the physical, chemical or biological state or act destructively upon the plant or animal world,

5) waste materials mean such waste articles or solid substances, and also liquid substances which are not sewage, as arise in conjunction with the daily existence of man or economic activity, useless in the place or at the time in which they arose and noxious to the environment,

6) noxiousness to the environment means such physical phenomena or states which hinder life or cause harm to the surrounding environment, particularly noise, vibrations, pollution of the atmospheric air and waste pollution; harmful noxiousness to the environment means the aforementioned phenomena or states in such intensity as can hinder life or cause harm to the surrounding environment to a degree which threatens the health of man or endangers or destroys the environment,

7) the landscape values of the environment mean the ecological, esthetic, scenic and cultural values of the terrain and accompanying natural elements protected by the forces of nature or as a result of the activity of man,

8) organizational units mean units of the socialized economy as well as those units which are not units of the socialized economy,

9) minister means the director of the central office as well,

10) regulations concerning environmental protection also mean other regulations controlling matters of environmental protection or protection of its natural elements.

Article 4. The natural resources of the environment may be utilized to serve socioeconomic needs only in a manner set out in national socioeconomic plans and in plans of territorial development and regulations concerning environmental protection.

Article 5. (1) Environmental protection is an essential element of State socioeconomic policy. The tasks connected with environmental protection are elaborated in national socioeconomic plans and in plans of territorial development, as well as in standard charters, and they are taken into consideration in the activities of state officials, organizational units and social organizations.

(2) Undertakings in the domain of environmental protection are a composite part of socioeconomic tasks.

(3) In national socioeconomic plans the tasks and means for ensuring effective environmental protection and the elimination of the consequences of activities which have a negative effect on the environment are considered to be an integral part of the undertakings which they project.

(4) the plans referred to in paragraph 3, in detail:

- 1) define the necessary undertakings for ensuring environmental protection or restoring the environment to its natural state,
- 2) establish conditions for undertaking and carrying out economic activity enabling the realization of optimal effects in the domain of environmental protection, and ensure the necessary means to this end,
- 3) make use of the achievements of science and technology for reducing or eliminating danger to the environment.

Article 6. (1) In plans of territorial development, in the establishment of directions of development of the nation, voivodships, cities and rural communes the needs of environmental protection should be considered.

(2) In plans of territorial development conditions for maintaining the balance of nature are ensured, as well as the rational management of natural resources of the environment and the protection of landscape values and climactic conditions. The use to which land is put and the farming methods utilized should to the highest degree ensure the preservation of its natural values.

(3) In plans of territorial development in the designation of land for various ends and in the definition of tasks connected with the cultivation of this land, the proportions allowing for the preservation or restoration of the balance of nature on it as well as suitable living conditions are established.

(4) Plans of territorial development, in detail:

- 1) establish programs for the rational utilization of the earth's surface and the rational management of the resources of the soil,
 - 2) ensure the comprehensive resolution of problems of the development of towns and villages, with particular attention to the water economy, sewage drainage, the storage and neutralization of waste materials, the planting and development of areas of greenery,
 - 3) ensure the protection of landscape values of the environment and climactic conditions,
 - 4) take into consideration the need to protect the atmosphere and to protect man and the environment against noise and vibrations as well as harmful radiation, and also the need to protect the earth's surface in areas of mining exploitation.
- (5) Plans of territorial development also define the method of bringing into cultivation areas beset by destructive action upon the environment,

as a result of economic activity, if such action cannot be eliminated or effectively limited by the application of appropriate technical means, a change in technology or by the designation of protective zones.

Article 7. (1) The decisions of state administrative officials may not violate the requirements of environmental protection, and in particular the guidelines of plans for territorial development with regard to environmental protection.

(2) An administrative decision contradictory to the regulation in paragraph 1 is null and void.

Article 8. (1) The Polish People's Republic is developing international cooperation in matters of environmental protection.

(2) International treaties concluded by the Polish People's Republic should take into consideration the needs of environmental protection.

Chapter 2. The Creation of Conditions for Environmental Protection.

Article 9. In the course of the realization of tasks for environmental protection the methods and means to be applied issue from the actual state of knowledge and are those which ensure maximally effective protection, determined by identification of factors harmful to the environment and the degree of their noxiousness.

Article 10. (1) Higher schools, scientific institutions, scientific-research institutes and organizational units carrying on scientific-research activity participate in the creation of conditions for environmental protection particularly by conducting scientific research in close conjunction with the needs of environmental protection, by undertaking studies and experiments on the technology of production and industrial products not harmful to the environment, by cooperating in the development of technical progress with a view to the needs of the environment, by popularizing native and foreign scientific and technical achievements in the sphere of environmental protection as well as their practical application.

(2) Officials and institutions coordinating and directing scientific and scientific-research activity, as well as higher schools, scientific and scientific-research institutions which extend their scope to the operations of the scientific areas or to scientific disciplines connected with questions of environmental protection are obliged to take research on these questions into account in established programs and in their activities, as well as to develop this research.

Article 11. (1) Schools at all levels are obliged to take into account problems of environmental protection in their teaching-training activity, including these problems in their lesson plans.

(2) The obligation mentioned in paragraph 1 also refers to individuals conducting courses to improve the qualifications of workers.

Article 12. The mass media are obliged to create the proper attitude of society toward environmental protection and to popularize the principles of such protection in publications and programs.

Section II Basic Directions of Environmental Protection

Chapter 1. Protection of the Earth's Surface and Minerals

Article 13. (1) The earth's surface together with the soil and terrain is to be protected, consisting in particular of the prevention and counteraction of unfavorable changes in them, and in the case of damage or destruction, the restoration to their natural state.

(2) Those portions of the earth's surface and terrain, the protection of which is in the interest of society for scientific, esthetic, historical-commemorative or other reasons, are to be protected according to the regulations on the protection of nature.

(3) Organizational units and physical persons are obliged to manage the resources of the soil rationally, ensuring the protection of its production values and other values necessary for preserving the balance of nature.

(4) High quality farmland and forest land may not be designated for nonfarm and nonforest ends, or for investment purposes.

(5) Departure from the principles outlined in paragraph 4 is permitted only in exceptionally justified cases, covered by special regulations.

(6) The particulars of principles for protecting the resources of farm and forest lands and the recultivation of lands are defined in special regulations.

Article 14. In an alteration of the designation of farmland, forest land, and other cropland or land planted with trees or shrubs, in addition to longstanding indicators and a comprehensive cost effective analysis, the significance other than economic of these lands in the maintenance of the balance of nature and development of living conditions is taken into consideration.

Article 15. (1) Organizational units and physical persons making use of land are obliged to ensure the protection of soil against erosion, mechanical destruction and pollution by harmful substances, and if they conduct activity connected with the use of farmland or forest land, they are obliged to apply proper methods of cultivation, in particular the crop rotation and organic fertilization necessary for preserving or creating proper conditions for the development of organisms and water proportions in the soil.

(2) Organizational units and physical persons conducting activity not connected with the farm or forest use of land are obliged to execute this activity in a manner protecting the soil against pollution by harmful substances.

(3) Organizational units and physical persons conducting activity connected with the farm or forest use of land apply chemical and biological means, introduced directly or indirectly into the soil, in amounts and in a manner which does not disturb the balance of nature, and especially in amounts and in a manner which does not cause the harmful pollution of the soil or of water, the destruction of animals, plants and ecosystems or the deterioration of their living conditions or breeding conditions.

(4) The Ministers of Agriculture and or the Forestry and Timber Industry in agreement with the Ministers of Administration, Local Economy and Environmental Protection and of Health and Social Welfare, in the course of discharging their duties, shall determine the manner, range and conditions of application of the agents referred to in paragraph, adapted to the needs of environmental protection.

(5) The Council of Ministers in the course of discharging their duties shall determined the particulars of the principles for protecting the earth's surface.

Article 16. (1) Mineral deposits are subject to protection consisting of the rational management of their resources and the comprehensive use of minerals, including attendant minerals.

(2) Officials of the state administration in plans of territorial development and in decisions concerning the matter of establishing the location as well as the site and conditions for the realization of investments on terrain possessing mineral deposits take into account the present and future needs of the exploitation of these deposits.

Article 17. (1) The exploitation of mineral deposits is conducted in an economically justified manner and with the application of measures for limiting harm to the environment, with the rational extraction and management of minerals ensured.

(2) Organizational units and physical persons undertaking the exploitation of mineral deposits or conducting such exploitation are obliged to undertake measures necessary for protecting the resources of the deposits, as well as for protecting the earth's surface and surface and subterranean waters, by stages to carry out the recultivation of exploited terrain and to restore the other natural elements of the environment to their natural state.

(3) The management principles of mineral deposits and of environmental protection connected with the exploitation of deposits are defined in special regulations.

Chapter 2. Water Pollution Control and Protection of the Marine Environment

Article 18. Inland surface and subterranean waters and the marine environment are subject to protection comprised of the rational handling of their resources, the prevention or counteraction of the disruption of the balance of nature and the causing of changes in waters leading to their unsuitability for people, the plant or animal world or the national economy.

Article 19. If the proposed use of inland waters or waters creating the marine environment may cause the significant transformation of the environment, the organizational unit undertaking investment or exploitative activity is obliged to execute a program of endeavors and tasks necessary for the new development of the environment ensuring the balance of nature. The activity leading to the new development of the environment is a composite part of endeavors connected with the use of the waters.

Article 20. (1) In the preparation and execution of land-reclamation efforts, drainage and other work on the land to change the water proportions, organizational units and physical persons are obliged to apply methods ensuring the maintenance in the soil of the water proportions essential for preserving the balance of nature.

(2) The State Inspectorate for Environmental Protection establishes the conditions for conducting the work referred to in paragraph 1, undertaken on lands of particular socioeconomic value, and especially on lands on which are found concentrations of plant life of particular value from the point of view of nature or the economy, lands of landscape or ecological value, lands with mass bird hatcheries or fish spawning grounds or lands where concentrations of protected species are found.

Article 21. Subterranean waters and their supply areas are subject to special protection comprised especially of not admitting pollutants into these waters and preventing and counteracting harmful effects on their supply areas.

Article 22. Economic endeavors influencing the state of water resources in a particular area as well as water proportions in this area should be preceded by a comprehensive expert appraisal of the consequences of the realization of these endeavors, on neighboring areas as well.

Article 23. (1) The local official of the state administration at the voivodship level with the approval of the Minister of Administration, Local Economy and Environmental Protection limits or forbids the use of boats or some such entities on designated waterways or water reservoirs, if this is necessary for the maintenance of the environment of its natural state.

(2) The regulation in paragraph 1 does not apply to the use of boats connected with maintaining the waterways or water reservoirs.

Article 24. The particulars of the water economy and water pollution control, as well as the principles of the protection of the marine environment and the state administration especially in matters of such protection are defined in special regulations.

Chapter 3. Air Pollution Control.

Article 25. Air pollution control consists of preventing the penetration of allowable concentrations of pollutants into the atmosphere and limiting or eliminating the amounts of these substances introduced into the atmosphere by production and service facilities, motor vehicles, refuse dumps, dumping grounds and other sources of pollution.

Article 26. Atmospheric pollution is the introduction into the atmospheric or solid, liquid or gaseous substances in amounts which can have a negative effect on the health of man, the climate, animate nature, the soil, the water or can cause other harm to the environment.

Article 27. Organizational units and physical persons conducting economic activity are obliged to apply methods, technologies and technical means for protecting the atmosphere against pollution and, as necessary, to proceed with setting up protective zones or with defining principles of area development, as referred to in article 6 paragraph 5.

Article 28. (1) With the undertaking of endeavors in conjunction with the introduction of pollutants into the atmosphere, the present and future states of pollution of the atmosphere in a given area, determined by the proper state administrative official, should be considered.

(2) Organizational units and physical persons conducting economic activity causing the introduction of pollutants into the atmosphere are obliged to carry out tests of the concentrations of these substances.

Article 29. The Council of Ministers in the course of discharging their duties shall determine:

- 1) the allowable concentration of pollutants in the atmosphere, the range and circumstances of deviation from these concentrations, the proper officials to pass judgment in matters of deviation,
- 2) principles for ascertainment by local state administrative officials of allowable types and quantities of pollutants to be introduced into the atmosphere,
- 3) principles for executing the measurement of concentrations of substances.

Article 30. (1) The local state administrative official at the voivodship level in the course of making decisions ascertains the types and quantities of pollutants of the atmosphere to be allowed to be introduced into the air by organizational units or physical persons undertaking or conducting economic activity.

(2) Compliance with the regulations of the decision referred to in paragraph 1 neither excludes from nor limits the responsibility of organizational units or physical persons for damage caused by the pollution of the atmosphere.

Article 31. (1) In the case of a violation of the regulations of the decision referred to in article 30, paragraph 1 by an organizational unit or physical person, the local official of the state administration at the voivodship level, independently of the application of other measures prescribed by law, may hand down a decision halting activity which has caused a violation.

(2) In the cases defined in paragraph 1, upon the suggestion of an interested party, the official named in this regulations may establish a time period for the elimination of a violation, and in the event that it is not eliminated within this period, he may halt the activity which has caused the violation.

Article 32. (1) In the event of particularly unfavorable atmospheric conditions or as a result of other causes which can give rise to a situation in which pollutants of the atmosphere exceed the allowable concentrations in a given area to a degree which creates a direct threat to the life or health of people, the local official of the state administration at the voivodship level shall give the order for a designated period to limit or prohibit the introduction of definite pollutants into the atmosphere. This official may also limit or prohibit the use of vehicles driven by combustion engines in areas in which the harmful concentration of pollutants of the atmosphere has occurred, endangering the health of people.

(2) The regulation in paragraph 1 may be applied correspondingly in the case of a concentration of pollutants of the atmosphere in a definite area to a degree creating a serious threat to the state of monuments.

(3) The Minister of Administration, Local Economy and Environmental Protection in agreement with the Minister of Health and Social Welfare, in the course of discharging their duties:

1) shall determine allowable types and quantities of pollutants for introduction into the atmosphere, produced by combustion engines,

2) may in the event of need, within a definite area, prohibit the use of fuels or raw materials or the application of technological processes causing air pollution to a degree which endangers the health of people.

Chapter 4. Protection of the Plant and Animal World

Article 33. (1) The protection of the plant and animal world is comprised of the rational use of the resources of the plant and animal world, their

regeneration in a manner ensuring the maintenance of the balance of nature and the preservation in an unviolated state of the resources or their composite parts, which have particular value from the point of view of scientific or social needs.

(2) The protection of the plant and animal world has as its goal:

- 1) the creation of conditions for the proper development and optimal execution by plants and animals of their biological function for the benefit of the environment,
- 2) the prevention or limitation of harmful influences upon the environment, which can affect the resources and state of the plant and animal world unfavorably,
- 3) the prevention of threats from without to the natural complexes and creations of nature of exceptional value to society and science,
- 4) the ensuring of the balance of nature necessary for the preservation of vanishing species, of the protection of species against excessive exploitation, as well as of valuable ecosystems.

Article 34. (1) The protection of the plant and animal world is ensured in detail in plans of territorial development through the protection of forests and forested areas against the harmful effects of environmental pollutants, through the setting aside of forests, the creation of forested areas or concentrations of plant life, especially when this is essential from the point of view of the need for protecting the soil and the animal world, climactic development as well as other needs connected with ensuring the balance of nature and serving the needs of people in the domain of rest.

(2) The administration of forests and other organizational units operating in the sphere of the forest economy together with the proprietors of forests and forested lands which are not the property of the State are obliged to carry out rational forest economy, having as its goal the preservation of the balance of nature and proper environmental quality.

(3) Officials of the state administration and organizational units and physical persons conducting economic activity are obliged to protect forests against the harmful effects of gases, dust and sewage arising in conjunction with economic activity.

(4) The Council of Ministers in the course of discharging its duties shall determine the particulars of the protection of forests against the harmful effects of gasses, dust expelled as a result of economic activity carried out by organizational units and physical persons, as well as the principles of the cooperation of these units and persons with the administration of forests to the end of protecting forests and liquidating dangers to forests caused by pollutants.

Article 35. (1) The principles of protecting natural creations, areas of exceptional natural value in nature, resources of wildy growing plants and wildy living animals, all of which are valuable from the point of view of their particular scientific or social value or their elusiveness or rare appearance, are defined in regulations about the protection of nature.

(2) The principles of the protection of farm and house animals are defined in special regulations.

Article 36. (1) Botanical and zoological gardens with regard to their social, didactic, educative-cultural, scientific and economic roles are subject to the protection necessary for ensuring the proper functioning and development of these centers.

(2) The Minister of Administration, Local Economy and Environmental Protection in the course of discharging his duties shall define the principles for the protection of botanical and zoological gardens.

Article 37. The destruction of plant life which serves to anchor the soil and the destruction of plants and animals contributing to purification of the environment, and particularly waters is prohibited.

Chapter 5. The Protection of Landscape Values and Environments of Rest.

Article 38. Landscape values of the environment are subject to protection, consisting of their preservation, development or regeneration.

Article 39. Landscape values of the environment, of particular value from the point of view of social needs, are subject to protection, the principles and forms of which are defined in regulations on the protection of nature.

Article 40. The protection of landscape values of the environment and the resulting tasks are taken into account in socioeconomic plans and in plans of territorial development.

Article 41. The national council at the voivodship level may introduce prohibitions or orders necessary for ensuring the protection of lands possessing values of rest and landscape values against their destruction or the loss of these values.

Chapter 6. The Protection of Greenery in Cities and Villages.

Article 42. (1) The national councils, local officials of the state administration and organizational units ensure inhabitants of cities the use of animate nature, above all through the creation of areas of urban greenery, connected, to the extent that it is possible, with forested areas.

(2) By urban greenery is understood groups of plant life found on lands designated in the plan of territorial development for purposes of rest, health and esthetics, in particular parks, squares, greenery along streets and squares, isolated greenery, workers' allotment gardens.

Article 43. (1) The outlay of areas of greenery in cities should ensure the proper health, climactic and rest conditions necessary for serving the needs of inhabitants of cities in conjunction with their habitation, work and rest.

(2) In the alteration of the designation of an area of urban greenery for other ends procedures are applied providing for the execution, coordination and support of the plan of territorial development of the settled unit or group of settled units. An alteration in the designation of lands planted with an ancient forest may be executed only by agreement of the voivode, and in cities at the voivodship level, by agreement of the Minister of Administration, Local Economy and Environmental Protection, expressed before the commencement of action leading to the alteration of the plan.

(3) The regulation in paragraph 2 applies as well to yet uncultivated areas, or areas designated in the plan of territorial development for ends referred to in article 42, paragraph 2.

Article 44. (1) In public streets, squares and roads chemical agents may be applied only in such a manner as to do no harm to urban greenery.

(2) Groundwork and other work connected with the use of mechanical implements or technical equipment, conducted in proximity to trees or clusters of trees, may be executed only in a manner not harming the trees.

(3) The Minister of Administration, Local Economy and Environmental Protection in the course of discharging his duties establishes the types of agents which may be applied in the spaces defined in paragraph 1, as well as the conditions for their application.

Article 45. Lands not designated for construction and lands projected for cultivation at a later date and not utilized in agriculture are cultivated in particular through the planting on them of plants appropriate to their surroundings, taking into consideration the period of cultivation, if it is of a temporary nature.

Article 46. The regulations in article 42-45 are applied correspondingly to areas of greenery on compactly developed village areas.

Article 47. (1) Lands on village areas covered with standing timber of a park character which are the property of or will be in use by units of the socialized economy, are subject to the same protection as village parks, if they do not come under the regulations for the protection of monuments.

(2) The national council at the voivodship level:

1) establishes the village park, determines its borders and the method of executing protection,

2) may recognize as a village park lands on which an ancient forest is found, also the property of physical persons or organizational units which are not units of the socialized economy; this does not apply to lands planted with fruit trees and lands serving ends of a religious cult, as well as cemeteries.

(3) The Minister of Administration, Local Economy and Environmental Protection by agreement with the Minister of Culture and Art and the Minister of Forestry and the Timber Industry, in the course of discharging their duties, shall determine the principles for recognizing forested lands in village areas as village parks, for the protection of these parks, as well as for their management.

Article 48. (1) Organizational units and physical persons are obliged to maintain in their natural state trees and shrubs growing on real estate in use.

(2) The removal of trees and shrubs from real estate may occur with the permission of the local official of the state administration at the basic level. This official may make the granting of permission subject to the transfer of trees or shrubs into a place designated by him, if such transfer is possible, or to the replacement of trees or shrubs projected for removal by other trees or shrubs.

(3) Permission for the removal of trees or shrubs from real estate entered into the register of monuments may be executed only with the observance of the requirements defined in the regulations on the protection of monuments.

(4) The regulation in paragraph 2 does not apply to:

- 1) trees and shrubs in forests and on forested lands,
- 2) forested areas, trees and shrubs on farms, in allotted-plot gardens and orchards,
- 3) trees and shrubs removed from areas of urban greenery and from village parks in conjunction with cultivation efforts.

Chapter 7. Protection of the Environment against Noise and Vibrations.

Article 49. (1) Protection against noise and vibrations consists of preventing their occurrence or penetration of the environment.

(2) Organizational units and physical persons ensure the protection of the environment against noise and vibrations by desisting from actions which cause noise or vibrations and by applying the appropriate technical means for preventing the occurrence or penetration of noise or vibrations into the environment, having also the goal of decreasing their volume. The sources of the noise or vibrations must be isolated as much as is necessary via the establishment of protective zones.

Article 50. The Council of Ministers in the course of discharging their duties shall determine:

- 1) the allowable volume of noise and vibrations in the environment,
- 2) the duties of officials of the state administration, organizational units and physical persons, in conjunction with the protection of people and the environment against noise and vibrations.

Article 51. (1) The local official of the state administration at the voivodship level establishes the state of the volume of noise and vibrations in the environment.

(2) If noise or vibrations in the environment exceed the allowable volume, the local official of the state administration at the voivodship level, in the course of making decisions, determines the allowable level of noise or vibrations penetrating the environment for organizational units or physical persons.

(3) In the event of the transgression of the allowable level of noise or vibrations determined by decision, as referred to in paragraph 2, the local official of the state administration at the voivodship level may halt the activity causing the transgression.

(4) In the cases defined in paragraph 3, at the suggestion of an interested party, the official named in this regulation may establish a period for righting the transgression of the allowable level of noise or vibrations, and in the event that this is not done within this period, he may halt the activity causing the transgression.

Article 52. (1) The route and technical development of communications lines should ensure the least possible noxiousness to the environment in the sphere of noise and vibrations.

(2) The local official of the state administration at the voivodship level may establish limits regarding work time or the use of technical equipment and means of transport and communication which create noxiousness to the environment in the sphere of noise and vibrations.

Chapter 8. Protection of the Environment against Waste Materials and Other Pollutants.

Article 53. Organizational units and physical persons conducting economic activity resulting in the formation of waste materials are obliged to protect the environment against pollution, destruction or other negative effects of these waste materials, as well as to proceed in a manner ensuring the protection of the environment against waste materials, making their economic use their first priority.

Article 54. (1) Waste materials which cannot be used economically are liquidated or rendered harmless, are collected or dumped out in places designated for this end in plans of territorial development, in a manner ensuring environmental protection.

(2) The obligations outlined in paragraph 1 are the duty of organizational units and physical persons referred to in article 53.

(3) The manner of removing and rendering harmless waste materials threatening contamination or contagion and other waste materials which are particularly dangerous for the environment requires the approval of the local official of the state administration at the voivodship level.

(4) The regulations of paragraphs 1-3 are also applicable to the removal and liquidation of raw materials, products and other materials recognized as unsuitable for economic utilization.

Article 55. Organizational units and physical persons producing packing materials and other products which, after being used or consumed, may threaten the environment are obliged to determine a way for their repeated use, and in the event that such a possibility is lacking, a manner for collection or liquidation which ensures environmental protection.

Article 56. The local officials of the state administration ensure the organizational and technical conditions necessary for environmental protection against waste materials and see that order and cleanliness are maintained in areas of their jurisdiction.

Article 57. (1) The maintenance of order and cleanliness consists of the removal from lands of cities and villages of dense development, as well as from individual real estate the waste materials and other pollutants formed as a result of man's daily existence and his activity, and of removing trash, waste materials, snow, ice and mud from streets, roads and public squares.

(2) The obligation referred to in paragraph 1 fall on:

- 1) proprietors and managers of real estate,
- 2) usufructuaries of premises, real estate and buildings designated for purposes of trade, food-catering, storage and other economic purposes, as well as buildings designated for purposes of public use,
- 3) directors of construction, with reference to real estate which is a construction area,
- 4) organizational units utilizing lands serving public communication,
- 5) local officials of the state administration at the basic level, with reference to lands not mentioned in points 1-4.

Article 58. The Council of Ministers in the course of discharging their duties shall determine:

- 1) the particular tasks of local officials of the state administration in matters of environmental protection against waste materials and other pollutants,
- 2) the particular responsibilities of organizational units and physical persons resulting from articles 53-55 and 57,
- 3) the principles of non-gratuitous or gratuitous maintenance of order and cleanliness by communal cleaning firms (establishments).

Chapter 9. Protection against Radiation.

Article 59. Radioactive substances and equipment producing harmful radiation may be used exclusively under the condition of the ensuring of the necessary protection against their harmful effects on people and the environment.

Article 60. (1) Organizational units which produce, utilize, transfer or store radioactive substances or use equipment producing radiation harmful to people and the environment are obliged to apply protective measures against the effects of radioactive sources.

(2) Structures in which activity connected with the use of radioactive substances or the use of equipment producing radiation harmful to people and the environment are carried on, are projected, built, operated and liquidated in a manner which does not create a threat to people and the environment. These structures are, as far as is necessary, surrounded by the protective zones referred to in article 71, paragraph 1.

Article 61. The economic use of industrial waste materials containing radioactive substances takes place on the basis of the decision of the State Inspectorate of Environmental Protection handed down by agreement with the proper official in matters of radiological protection, and the State Sanitary Inspectorate.

Article 62. Organizational units which utilize radioactive substances or equipment producing radiation harmful to people and the environment are obliged to conduct tests of the amounts of radiation penetrating into the environment.

Article 63. (1) The Council of Ministers in the course of discharging their duties shall determine the particulars of protection against radiation harmful to people and the environment.

(2) The regulation in paragraph 1 does not apply to protection against ionizing radiation, the principles of which are defined in special regulations.

Section III The Execution of Environmental Protection.

Chapter 1. Duties of Organizational Units and Physical Persons.

Article 64. (1) Organizational units and physical persons conducting economic activity are obliged to ensure environmental protection and to eliminate or limit harmful noxiousness to the environment.

(2) Organizational units and physical persons conducting or intending to undertake activity which may be harmful to the environment are obliged to apply measures ensuring its protection.

Article 65. Physical persons are obliged to observe the requirements of environmental protection if they make use of the environment for purposes other than economic as well, and especially purposes of tourism or rest.

Article 66. Officials of the state administration and organizational units and physical persons conducting economic activity are obliged to ensure environmental protection particularly through:

- 1) arranging the means of production in a manner causing the least danger to the environment,
- 2) ensuring in an economic activity which has been planned or is being conducted the required protection of natural elements or their composite parts as well as their return to their natural state, if as a result of the economic activity they have lost their usefulness,
- 3) concern over the landscape values of the environment,
- 4) applying in an economic activity the technology and technical developments which create the slightest threat or noxiousness to environment, and particularly low-waste and non-waste technology,
- 5) the building or installation and efficient operation and utilization of equipment protecting the environment,
- 6) the installation of checking-testing apparatus and the carrying out of the necessary tests,
- 7) the taking into account of the requirements of environmental protection in projected, constructed and manufactured machines, technical equipment and other goods,
- 8) the economic utilization of waste materials and sewage or their successful rendering harmless or liquidation,
- 9) the use of scientific and technical achievements, the application of economic, legal and organizational means to the end of environmental protection.

Article 67. (1) Workers in organizational units are obliged to proceed in a manner ensuring the observance of the requirements of environmental protection.

(2) The director of an organizational unit is obliged to organize work in a manner ensuring environmental protection, and in particular:

- 1) to ensure the observance of regulations on environmental protection,
- 2) to ensure the operation of equipment protecting the environment,
- 3) to ensure the removal of causes of danger to or disruption of the environment,
- 4) to entrust functions connected with ensuring environmental protection to persons possessing the appropriate technical training.

Chapter 2. Environmental Protection in Investment Activity.

Article 68. (1) The investor, planner and executor with regard to projects, each in his own sphere of tasks, are obliged:

- 1) to take into account in investment activity the requirements of environmental protection,
 - 2) to ensure the application in construction, especially housing construction and construction for public use, of building materials and elements successfully protecting the usufructuaries of structures against noise and vibrations, and also against other harmful effects on human health.
- (2) The investor and planner in preparing an investment of an economic character are obliged to apply technological processes causing the least noxiousness to the environment as well as rationally to solve problems of dealing with waste materials and sewage, and particularly problems of their economic utilization.
- (3) A state administrative official establishing the location for realization of an investment and the investor and planner are obliged to ensure the conservative use of the land necessary for the investment undertaken.
- (4) A newly constructed or modernized structure or group of structures may not be given over to use if the required equipment for environmental protection as set out in regulations or projected within the frame of the given investment was not executed.
- (5) The projected development of investments which may cause harm to the environment requires the approval of the local official of the state administration at the voivodship level.

Article 69. (1) In the designation of a location for an investment the requirements of environmental protection resulting from plans of territorial development and from regulations on environmental protection must be taken into account.

(2) The Council of Ministers in the course of discharging their duties may define areas requiring special protection, on which the location of an investment or construction ventures affecting the environment unfavorably requires the approval of the Minister of Administration, Local Economy and Environmental Protection.

Article 70. (1) The proper state administrative official in matters of environmental protection may demand from the investor, as well as from the proprietor or manager of a structure or group of structures the submission of an opinion prepared by an indicated expert regarding the effect of an investment or a structure or group of structures upon the environment.

(2) The costs of the opinion referred to in paragraph 1 will be borne by the investor, proprietor or manager of the structure or group of structures.

(3) In the event of the nonpresentation of the demanded opinion within a given time period its execution may be commissioned at the expense of the person under obligation.

(4) Opinions regarding environmental protection are executed by higher schools, scientific centers, scientific-research institutes and organizational units conducting scientific-research activity, as well as scientific societies, scientific-technical societies and physical persons, all of which are entered on a list of experts. This list is determined and maintained by the Minister of Administration, Local Economy and Environmental Protection.

Chapter 3. Limitations in the Use of the Environment.

Article 71. (1) In the event that despite the application of the appropriate technical developments harmful effects on the environment caused by activity executed within a structure or on real estate land cannot be eliminated, if, at the same time social opinion speaks to maintain such activity, a protective zone may be created for this structure or piece of real estate.

(2) The Council of Ministers in the course of discharging their duties shall determine principles for the creation and management of protective zones.

(3) The regulation in paragraph 2 does not apply to zones, the principles of creation and management of which are defined in special regulations.

Article 72. In the initiation of the protection of animate natural resources, certain natural creations or areas of landscape value, which

protection is projected in regulations on environmental protection, the principles of their utilization and necessary prohibitions and rules applicable to an object of protection and its domain, which principles enable the preservation of protective natural or landscape values, are defined.

Article 73. (1) The following are prohibited:

- 1) a structure or the building of structures which exert a harmful influence or the environment in areas which require special protection, such as: national parks, nature reserves, landscape parks, protected landscape areas, health resort area, tourist-rest locales, areas on which are located the sources of the water supply of cities, villages or groups of settled units,
 - 2) a structure or the building of structures within the administrative jurisdiction of cities or within the sphere of a dense development of villages, production facilities or service facilities, which creates a threat to human health,
 - 3) the erection in proximity to the sea, lakes, other bodies of water, rivers and canals, scenic landscape points or to lands of particular landscape value of structures disrupting the landscape values of the environment, making access to them impossible or creating obstacles to; or making impossible the access of animals living in a wild state to waters.
- (2) Overhead and underground cable lines and communications lines and other line equipment are laid and function in a manner ensuring the preservation of the landscape values of the environment and its protection against harmful noxiousness to the environment.
- (3) Limitations in developing the land referred to in paragraphs 1 and 2 are taken into account in plans of territorial development and in decisions of state administrative officials establishing the locale as well as the site and conditions for the realization of building investments.

Chapter 4. Machines and Other Technical Equipment.

Article 74. (1) Designers, planners and producers of machines and other operating equipment, including means of communication and transport, are obliged to ensure that machines and other operating equipment meet the requirements of environmental protection.

(2) Machines and other operating equipment referred to in paragraph 1, before being accepted for production, are given over to be evaluated with regard to compliance with the requirements of environmental protection.

(3) The evaluations referred to in paragraph 2 are executed by individuals appointed to perform qualitative evaluation and to make decisions concerning the acceptance for production or for trade, for use or exploitation.

(4) Machines and other operating equipment referred to in paragraph 1 may not be put into production, selected for trade or designated for use or other utilization, if they do not fulfill the established requirements of environmental protection.

Article 75. (1) The manufacturers of machines and other operating equipment which, if improperly used or applied, may threaten the environment, are obliged to attach instructions indicating the manner of usage or application from the point of view of environmental protection.

(2) The manufacturers of machines and other operating equipment which, during the design process, cannot ensure the requirements of environmental protection, are obliged to equip them with the appropriate devices for protecting the environment. If, however, the use of these devices is contingent upon conditions occurring in their operation or usage, the duty of applying the device falls upon the usufructuary as well, who is responsible, moreover, for its proper application.

(3) The manufacturers of machines and other operating equipment are obliged:

1) to execute running analyses of their construction projects with regard to the possibility for eliminating or reducing the level of danger to the environment,

2) to supply them, if they have been evaluated in the manner referred to in article 74, paragraphs 2 and 3, with information attesting to the fulfillment of the established requirements of environmental protection.

(4) The usufructuaries of machines and other operating equipment are obliged to carry out periodical inspections checking the fulfillment by the machines and equipment of the requirements of environmental protection.

(5) The use of machines and other operating equipment which does not comply with the established requirements of environmental protection is prohibited.

Article 76. (1) the local official of the state administration at the basic level may require usufructuaries of machines or other operating equipment to carry out within a definite time period the appropriate actions leading to the limitation of their noxiousness to the environment.

(2) In the event of the nonapplication by the usufructuary of a machine or other operating equipment of the requirements referred to in paragraph 1, the local official of the state administration at the voivodship level may require the machine or piece of operating equipment causing noxiousness to the environment to be put out of operation.

Article 77. Machines and other operating equipment which are imported must conform to the requirements of environmental protection defined by Polish legal and normative regulations.

Article 78. The Minister of Administration, Local Economy and Environmental Protection approaches the proper minister, other official or organization with a proposal to halt production or the importation of machines and other equipment harmful to human health or causing harmful noxiousness to the environment, produced or imported by a subject or supervised organizational unit.

Article 79. (1) The regulations of article 74-78 are applicable as well to the production and supply of fuels and products which are not machines and other operating equipment.

(2) The Council of Ministers in the course of discharging their duties may determine the particular requirements, from the point of view of the need for protecting human health and the environment, to which fuels and products which are not machines and other operating equipment must conform.

Section IV Responsibility for the Consequences of Disrupting the State of the Environment.

Article 80. An organizational unit or physical person bears the responsibility ordained by civil law for harm resulting from activities or non-performance of tasks which result in damage to the environment.

Article 81. (1) The proprietor or owner of real estate, the use of which is connected with noxiousness caused by the violation of regulations on environmental protection, may come before the law with a claim that this violation should cease, against an organizational unit or physical person permitting the violation.

(2) The director of an organizational unit or another of its employees, who, as a result of the nonexecution or inappropriate execution of his work duties, has caused a disruption of the state of the environment bringing consequences causing harm, bears the responsibility outlined in the principles of legal regulations.

Article 82. (1) An organizational unit or physical person executing economic activity having a harmful effect on the environment is obliged to undertake tasks having as a goal the removal of the causes of harmful effects on the environment or of a threat to the environment and the restoration of the environment to its natural state.

(2) The local official of the state administration at the voivodship level may establish in the course of decision-making, the sphere and manner of executing the duty referred to in paragraph 1, taking into consideration social interest, the existing state of destruction of, or the threat to the environment, and the real possibilities for executing the obligation.

(3) In the event that there is no possibility for executing the obligation referred to in paragraph 1, the local official of the state administration at the voivodship level obliges the organizational unit or physical person

conducting the economic activity to pay into the Environmental Protection Fund a sum of money corresponding to the amount of damage resulting from the disruption of the state of the environment.

Article 83. (1) If, despite the application of the measures projected in regulations on environmental protection, a certain action causes harm to the state of the environment to a significant degree, and particularly threatens the life or health of people, the Minister of Administration, Local Economy and Environmental Protection comes forth with a pronouncement concerning the removal of the threat to:

1) the proper minister or local official of the state administration at the voivodship level, with reference to the organizational units under his jurisdiction,

2) the central board of the union of a cooperative or the main board of a social organization--with reference to the organizational units under its jurisdiction and defines the measures to be applied toward removing the dangers.

(2) In the event of the nonapplication of the measures referred to in paragraph 1, the Minister of Administration, Local Economy and Environmental Protection approaches the proper officials concerning the cessation of such activity.

Article 84. (1) The proprietor of real estate located in a protective zone (article 71, paragraph 1) or within an area protected according to article 72, or on lands of urban greenery or within the limits of a village park may demand the repurchase or exchange of this real estate for another piece, if the utilization of it in its former manner would be connected with essential limitations or obstacles.

(2) In matters of the repurchase or exchange of real estate referred to in paragraph 1, the local official of the state administration at the voivodship level is in charge. The price of repurchase is determined and paid out according to principles defined in regulations on the dispossession of real estate. The costs of acquisition or exchange are borne by the organizational unit determined by the local official of the state administration at the voivodship level.

(3) The regulations of paragraphs 1 and 2 are applied correspondingly in the event of restitution by the court in a claim against the cessation of disruption of the environment (article 81, paragraph 1) as well as to a perpetual usufructuary of real estate.

Article 85. An individual of the socialized economy who is the proprietor or usufructuary of real estate located in the areas referred to in article 84, paragraph 1, may order the transference of another property on the basis of the principles defined in separate regulations, if the utilization of the property as in its former manner would be connected with essential limitations or obstacles.

Section V Economic Means of Environmental Protection

Chapter 1. Fees for Use of the Environment.

Article 86. (1) A fee is charged for the economic use of the environment and for introducing changes into it.

(2) A fee is charged for:

- 1) special use of waters,**
- 2) the introduction of pollutants into the atmosphere,**
- 3) the removal of trees,**
- 4) the utilization of farm and forest lands for other purposes,**
- 5) the storage of waste materials.**

(3) The Council of Ministers in the course of discharging its duties shall determine the range and amount of fees referred to in paragraph 2, the principles and procedure for establishing and charging them.

(4) The Council of Ministers in the course of discharging its duties may introduce fees for other types of use of the environment or for introducing changes into it other than those named in paragraph 2, at the same time determining the principles and procedure for establishing and charging them.

(5) The regulation in paragraph 3 does not refer to fees, the scope, amount and principles of establishment of which are covered by special regulations.

Chapter 2. The Environmental Protection Fund.

Article 87. (1) The Environmental Protection Fund is hereby created.

(2) The revenue of the Environmental Protection Fund is the income referred to in article 82, paragraph 3, income from the fees projected in article 86, paragraph 2, which are not the revenues of other funds defined in separate regulations, or the income from the fines projected in article 110.

(3) The revenue of the Environmental Protection Fund may also be good-will monetary and material offerings, and other revenues determined by the Council of Ministers.

Article 88. (1) The means of the Environmental Protection Fund are earmarked to cover the costs of or to provide additional financing for activities leading toward environmental protection, and particularly for:

- 1) the realization of investment tasks,**
- 2) providing additional financing for social actions of the populace,**

3) an activity connected with the utilization of waste materials and with introducing technology for their liquidation,

4) other outlays for purposes connected with environmental protection.

(2) The Council of Ministers in the course of discharging its duties shall determine the particulars of the creation and utilization of the Environmental Protection Fund as well as the proper official to administer this Fund.

Section VI Organizing Environmental Protection.

Chapter 1. The Officials of Environmental Protection.

Article 89. (1) The proper ministers ensure the conditions necessary for the realization of the regulations on environmental protection by the organizational units subject to and supervised by them.

(2) The supervision and inspection of the execution of tasks in the sphere of environmental protection by cooperative and social organizations are performed by:

1) the unions of cooperatives--with reference to the union members within them from the cooperative,

2) the main boards of social organizations--with reference to organizational units under their jurisdiction and the union members within them from the organization.

Article 90. (1) The national councils and local officials of the state administration ensure the conditions necessary for the realization of the regulations on environmental protection on land which is under the jurisdiction of these officials, as well as by organizational units subject to and supervised by them.

(2) The national councils vote on programs on environmental protection and periodically hear the reports of local officials of the state administration on the fulfillment of the law.

Article 91. The national councils and local officials of the state administration conduct inspections of the compliance with and application of regulations on environmental protection in areas of the jurisdiction of these officials.

Article 92. (1) The Minister of Administration, Local Economy and Environmental Protection coordinates the activity of officials of the state administration, and of cooperative and social organizations in the sphere of environmental protection and conducts inspections of the compliance with and application of the regulations of the law, providing clarifications in matters of their proper application, and also evaluates the state of the environment and changes occurring in it.

(2) The Council of Ministers in the course of discharging its duties shall define the particulars and the procedure for executing the coordination referred to in paragraph 1.

Article 93. The Ministers issue regulations within their jurisdiction regarding environmental protection in accordance with the Minister of Administration, Local Economy and Environmental Protection.

Article 94. (1) The State Inspectorate of Environmental Protection is hereby created.

(2) The State Inspectorate of Environmental Protection is subject to the Minister of Administration, Local Economy and Environmental Protection.

(3) At the head of the State Inspectorate of Environmental Protection stands the Chief Inspector of Environmental Protection, appointed and dismissed by the President of the Council of Ministers upon a motion by the Minister of Administration, Local Economy and Environmental Protection.

Article 95. The task of the State Inspectorate of Environmental Protection is:

- 1) to inspect compliance with and application of the regulations of the law,
- 2) to conduct and initiate studies having as a goal the evaluation of the state of the environment and changes which have occurred in it,
- 3) to undertake activities creating conditions for preventing threats to the environment and for restoring it to its natural state,
- 4) to popularize the principles of environmental protection,
- 5) to execute other tasks defined by law.

Article 96. The Council of Ministers in the course of discharging its duties shall determine the particular scope of activities and the organization of the State Inspectorate of Environmental Protection, as well as the principles and procedure of the execution by this organ, as well as by the local officials of the state administration, of inspections in the domain of environmental protection, and the principles of cooperation of these organs as well.

Article 97. (1) The State Council of Environmental Protection is hereby created as an advisory and consultative organ of the Council of Ministers in matters of environmental protection.

(2) Within the sphere of operations of the State Council of Environmental Protection is included the preparation of opinions for the Council of Ministers, the Presidium of the Government and the President of the Council of Ministers in matters of environmental protection, as well as the presentation of proposals and suggestions to these organs aimed at the creation of conditions for environmental protection and the preservation or improvement of its state.

(3) The President of the Council of Ministers appoints the Chairman of the State Council of Environmental Protection and its members.

(4) The Council of Ministers in the course of discharging its duties shall determine the organization, the particulars and the sphere of operations of the State Council of Environmental Protection.

Chapter 2. The Participation of the Home-rule of Inhabitants of Cities and Villages of the Workers' Home-rule and of Trade Unions and Other Social Organizations in the Creation of Conditions for Environmental Protection.

Article 99. (1) The home-rule of inhabitants of cities and villages, the workers' home-rule and trade unions and other social organizations interested in environmental protection from the point of view of the object of its activity may undertake activity to foster environmental protection and to aspire to the realization of the right of citizens to take advantage of its values consisting in particular of:

- 1) the development of a proper attitude to the environment, the broadening of understanding of the goals of environmental protection and the popularization of matters of environmental protection and actions aimed at ensuring this protection,
- 2) the initiation and undertaking of social tasks concerned with environmental protection,
- 3) the initiation and undertaking of tasks concerned with the proper attitude to animals and other elements of animate nature,
- 4) the submission of suggestions having as a goal environmental protection in investment and exploitative activity as well as suggestions aimed at improving its state,
- 5) cooperation with units of the socialized economy to develop and realize programs and plans of activity aimed at improving the state of the environment,
- 6) an increase of the influence of society on the actions of work facilities to the end of ensuring the optimal efficiency of actions on behalf of environmental protection,
- 7) the organization of meetings having as a goal broadening interest in the problems connected with environmental protection,
- 8) the execution of other powers projected by law.

(2) The organs of home-rule of the inhabitants of cities and villages, trade unions and other social organizations may be entrusted with performing the social functions of organs of environmental protection, which protection is executed in cooperation with the local officials of the state administration and the State Inspectorate of Environmental Protection.

(3) Social organizations may be entrusted with creating a guard of environmental protection.

(4) Conferences of the workers' home-rule and trade unions may appoint factory committees of environmental protection as well as social inspectors of environmental protection for the purpose of organizing and conducting social inspection of environmental protection by factories.

Article 100. (1) The organizations referred to in article 99, paragraph 1 may approach the proper officials of the state administration concerning the application of means aimed at removing a threat to the environment, and may also approach the courts concerning the cessation of disruption of the environment in a particular area and the restoration of its former state or the repair of damage which has been done in this regard, as well as the prohibition or limitation of activity threatening the environment.

(2) Officials of the state administration deciding upon the location and the designation of a place for the realization of building investments, before handing down a decision on an investment which will greatly affect the environment, inform the proper social organizations about the upcoming ventures, with regard to the object of their action; these organizations, within a definite period of not fewer than 14 days, may submit their suggestions and reservations.

(3) The proper official of the state administration shall examine the suggestions and reservations which have been submitted and shall notify the social organizations which have submitted suggestions and reservations of the manner of their settlement.

Article 101. Officials of the state administration give help to social organizations in their activity in the domain of environmental protection.

Article 102. Local officials of the state administration may entrust organizational units or physical persons, at their suggestion or with their approval, with the functions of social guardians of the environment, in each situation defining the object and sphere of the tasks entrusted to them.

Article 103. The Council of Ministers in the course of discharging its duties may define:

- 1) the principles of cooperation of officials of the state administration with trade unions and other social organizations in matters of environmental protection,
- 2) the principles of performing the functions of social organs of environmental protection by trade unions and other social organizations,
- 3) the principles of entrusting the function of social guardians of the environment as well as their manner of enactment,

4) the principles of the creation by social organizations of a guard of environmental protection as well as the scope and operational procedure of this guard.

Chapter 3. An Extraordinary Threat to the Environment.

Article 104. (1) In the event of an extraordinary threat to the environment, the local official of the state administration at the voivodship level undertakes activity and applies the means necessary for the removal of the threat and its consequences, determining in particular the attendant obligations of local officials of the state administration at the basic level and of organizational units.

(2) By an extraordinary threat to the environment is understood a threat caused by a sudden occurrence which is not a natural disaster and may cause significant destruction of the environment or the deterioration of its state, creating universal danger to people and the environment.

Article 105. (1) Organizational units and physical persons are obliged to inform the local official of the state administration or the nearest office of the Citizens' Militia immediately upon the occurrence of an extraordinary threat to the environment.

(2) Local officials of the state administration, according to the principles defined in regulations on presenting evidence for the purpose of combatting natural disasters, may initiate the obligation of presenting personal and material evidence for the purposes of organized social action on behalf of the protection of an extraordinarily threatened environment.

(3) If an extraordinary threat to the environment in its range exceeds the boundaries of one voivodship or this threat may have especially serious consequences for people or the environment, or for the national economy, the activities and means necessary for removing the threat and its consequences are undertaken by the Minister of Administration, Local Economy and Environmental Protection in accordance with the ministers concerned; in such a case this Minister is entitled to the powers referred to in paragraph 2 and in article 104, paragraph 1.

Section VII Punitive Regulations.

Article 106. Whoever in defiance of the regulations and the obligation incumbent upon him:

1) does not carry out the required tests (article 28, paragraph 2 and article 62),

2) in preparing and executing groundwork which alters water proportions, does not apply the necessary means for preserving the balance of nature (article 20, paragraph 1) or violates the conditions for conducting the work projects referred to in article 20, paragraph 2,

3) does not observe the prohibitions introduced on the basis of article 32, violates prohibitions or orders having as a goal the protection of rest and landscape values of a given area (article 41) or violates the obligatory principles of procedure established in an action for designating a given area as a village park (article 47) or violates a prohibition against worsening the conditions for use of the environment (article 73),

4) destroys plant life which serves to anchor the soil or plants or animals which contribute to the purification of the environment (article 37), applies chemical agents, executes groundwork or uses mechanical implements or technical equipment in a manner causing harm to trees (article 44),

5) does not observe requirements of environmental protection against waste materials, or raw materials, products and other materials or consumed packing materials and goods which are not suitable for economic utilization (articles 53-55),

6) does not comply with obligations connected with ensuring protection against radiation harmful to people and the environment (articles 59-62),

7) does not take into consideration the requirements of environmental protection in planned, constructed or manufactured machines and other operating equipment (article 74, paragraph 1), puts into production and selects for trade machines or other operating equipment without submitting it for the required evaluation of its compliance with the requirements of environmental protection (article 74, paragraphs 2 and 3), does not supply machines or other operating equipment with safety devices protecting the environment or does not carry out the required periodical inspections (article 75, paragraphs 2 and 4),

is liable to arrest, the curtailment of his freedom, a fine or a reprimand.

Article 107. (1) Whoever violates the obligation of environmental protection and causes, even inadvertently, the pollution of inland waters, the atmospheric air or the earth's surface in such a manner as to expose the lives or health of people to danger, to cause destruction in the plant or animal worlds in significant amounts or to occasion serious economic consequences,

is liable to the penalty of imprisonment of up to 3 years.

(2) If the perpetrator acts without intent,

he is liable to the penalty of imprisonment of up to a year or the curtailment of his freedom or a fine.

(3) If the deed described in paragraph 1 results in death, serious bodily harm or a serious health disorder in a human being,

the perpetrator is liable to the penalty of imprisonment of 6 months to 8 years.

Article 108. (1) Whoever in defiance of the obligation incumbent upon him does not maintain in its natural state or does not utilize equipment protecting the waters, the atmospheric air or the earth against pollution,

is liable to the penalty of imprisonment of up to 3 years.

(2) Whoever in defiance of the obligation incumbent upon him does not maintain in its natural state or does not utilize equipment protecting against harmful noxiousness to the environment in the form of noise, vibrations or radiation, or equipment for neutralizing waste materials; whoever permits a structure or group of structures to be put into use without the simultaneous activation of the required equipment protecting the environment is liable to the same penalty as in paragraph 1.

Article 109. (1) Whoever violates the regulations on the obligation to protect high quality farmlands and forest lands, or does not make the necessary effort to ensure the conservative use of farmlands and forest lands for nonagricultural or nonforest purposes, or does not execute the required recultivation of such lands,

is liable to the penalty of imprisonment of up to 3 years.

(2) Whoever accepts farmland or forest land for nonagricultural or nonforest purposes without the approval of the proper official,

is liable to the penalty of imprisonment of up to 3 years.

Article 110. (1) The local official of the state administration at the voivodship level levies a fine upon an organizational unit in the event of:

1) the introduction into waters or the earth, as well as into sewerage equipment which is the property of the State of sewage which does not fulfill the required conditions,

2) transgression by exceeding as to type or amount of allowable substances to be introduced into the atmosphere, as determined by the decision of the proper official,

3) transgression by exceeding the allowable level of noise as determined by the decision of the proper official,

4) the destruction of areas of greenery or trees and shrubs caused by the improper execution of groundwork or the use of mechanical implements or technical equipment, as well as by the application of chemical agents in a manner harmful to plant life or animals,

5) the removal of trees and shrubs without the required approval of the local official of the state administration,

6) the collection or dumping of waste materials in places not designated for this end or in a manner out of accord with the conditions defined by the local official of the state administration.

(2) The Council of Ministers in the course of discharging its duties shall determine the amount, the principles and the procedure for setting the fines referred to in paragraph 1, as well as for their collection.

(3) The regulation in paragraph 2 does not apply to fines, the amount, principles and procedure for the establishment of which are defined in special regulations.

(4) In units of the socialized economy operating according to principles of self-financing, the fines referred to in paragraph 1 encumber the economic outcome of the unit.

Section VIII Interim and Concluding Regulations.

Article 111. (1) In the event of the conflict of the regulations of the law with other regulations on environmental protection in force on the day of the coming into force of the law, the regulations of the law apply.

(2) The regulation in paragraph 1 does not apply to the responsibility for the transgression and the penal responsibility stipulated in articles 106-109.

Article 112. (1) The proper local officials of the state administration, during a period of two years from the coming into force of the law, bring about the adaptation of the binding plans of territorial development to the regulations of the law.

(2) Administrative decisions in the matter of establishing the location and conditions for the realization of building investments, as stipulated in the building code, the approval of production plans and building permits issued before the date of the coming into force of the law, and concerned with investments, the realization of which has not yet begun, may be, in legitimate cases, completed by the proper local officials of the state administration according to the conditions and requirements of the law.

Article 113. (1) Organizational units and physical persons conducting activity causing pollution of the atmospheric air, for whom the types and amounts of allowable substances for introduction into the atmosphere had not been established prior to the date of the coming into force of the law, are obliged for a period of one year from the coming into force of the law to present to the proper local officials of the state administration at the voivodship level the necessary data and materials they have gathered for the handing down of decisions establishing the types and amounts of allowable substances for introduction into the atmospheric air.

(2) The local officials of the state administration at the voivodship level, in handing down decisions referred to in paragraph 1, may stipulate in them deviations from regulations set up for a necessary period for the execution of suitable equipment protecting the air against pollution. This period may not be longer than five years.

Article 114. (1) Organizational units and physical persons utilizing equipment which causes noise or vibrations exceeding the allowable volume shall employ, for a period of two years from the coming into force of the law, the available means for eliminating or limiting noise or vibrations to an allowable level. In legitimate cases the local official of the state administration at the basic level may extend this time period.

(2) The proper ministers shall ensure the introduction of the appropriate changes in construction or in the principles of operating equipment for which, to the end of limiting noise or vibrations to an allowable level, the introduction of such changes is necessary.

(3) Changes in construction or in the principles of operating the equipment referred to in paragraph 2 should be introduced during the period established in paragraph 1. The extension of this period for a given type of equipment may occur with the approval of the Minister of Administration, Local Economy and Environmental Protection, expressed at the suggestion of the proper minister.

Article 115. The Council of Ministers presents the Diet of the Polish People's Republic with information concerning the realization of the law once every three years.

Article 116. In the law dated 24 November 1974, Water Law (DZIENNIK USTAW NR. 38, item 230) article 122 is deleted.

Article 117. The following hereby lose force:

1) a law dated 4 April 1959 concerning state supervision of zoos (DZ. U. Nr. 17, item 142),

2) a law dated 22 April 1959 concerning the maintenance of cleanliness and order in cities and hamlets (DZ. U., 1959, Nr. 27, item 167; 1961, Nr. 5, item 33; 1962, Nr. 34, item 158; 1971, Nr. 12, item 115; 1974, Nr. 38, item 230),

3) a law dated 21 April 1966 concerning protection of the atmospheric air against pollution (DZ. U. Nr. 14, item 87).

Article 118. The law comes into force on 1 September 1980.

Chairman of the Council of State: H. Jablonski

Secretary of the Council of State: L. Stasiak

8536

CSO: 5000

DOMINICAN REPUBLIC

INCREASING SEDIMENTATION ENDANGERS TAVERA DAM

Santo Domingo LISTIN DIARIO in Spanish 6 Feb 80 pp 1, 11

[Article by Santiago Estrella Veloz]

[Text] Tavera Dam--Colombian forester Hernan Carmona, an expert in the management of dam basins, cautioned yesterday about the dangerous and growing sedimentation at the Tavera Dam, stating that if it proceeds at the current pace, in 20 years "we can say good-bye to this project."

Carmona said that estimates and studies that his team has conducted show that a 50 square kilometer area around Tavera contributes between 4,000 and 5,000 cubic meters of sedimentation to the basin "during each period of wetness."

"This means that the Tavera area alone accounts for between 15 and 22 percent of the total volume of sediments," Carmona asserted in an orientation talk to some 300 peasant farmers and farm officials who were meeting in this community for a field day organized by the general directorate of FORESTA.

In the opinion of the Colombian technician, "controlling the sedimentation at Tavera Dam is one of the major goals for the entire country, not just FORESTA."

After citing figures, Carmona said that those in attendance should "reflect on them a bit so that we realize what an important task we have to organize in managing the resources that this important area contains."

Carmona is an adviser to the FEDA [Special Fund for Agricultural and Livestock Development], which has a budget of 3.4 million pesos to manage the Tavera Dam basin. The budget is financed by the IDB, along with funds from the Dominican Government.

In 1975 FORESTA began a program for the management of the Tavera Basin; the program is still small at present but has interesting prospects.

The program began by organizing peasant farmers in associations and teaching them farming techniques with the help of agronomists.

As of last June, 10 small, makeshift dams had been erected in the Tavera area. These retaining walls are made of stones or polypropylene bags filled with material from the area to hold back the overflows of tributaries and stop the sediments from being carried off.

The goal of the first stage of the overall project is to build 800 of these sediment control walls.

FORESTA has also promoted the construction of terraces on mountain-sides. These consist of horizontal cuts from the foot of a mountain on up, to stop water from running off and eroding the layer of vegetation, which winds up next to the dam.

In the beginning, the peasant farmers removed all of the grass from these terraces. The technicians determined, however, that it was better to leave this growth (even though it looks bad) because it acts as a sort of giant sponge for water, which insures that crops will grow during dry seasons.

FORESTA has also promoted a novel vegetable and fruit growing project in a pilot area of just 5024 square meters; 16 associated peasant farmers are working this land and are currently obtaining a modest daily yield of between 2.8 and 3.2 pesos year-round with alternating crops.

Prior to this they had nothing, having been displaced after the dam area was flooded, which forced them to move to higher land, where it is practically impossible to farm.

Any tobacco growing that takes place ravages the land, which is bad for the Tavera Dam.

Motivated by the relative success of their vegetable-growing colleagues, the farmers in the highlands are thinking seriously about emulating them, to the extent that they are already negotiating for loans, which the assistant administrator of the Agricultural Bank, Dario Bencosme, promised to expedite.

The Tavera area contains some 565,200 square meters of state-owned land that is available in the flat sections of the hills. The director of the IAD [Dominican Agrarian Institute], Frank Rodriguez, said that the government would give this land to farmers so that they can continue growing crops.

The 16 pioneering farmers grow beans, onions, cabbage, peppers and guandules on their small demonstration plot. They also enjoy and sell them, to the chagrin of middlemen and with the firm intention of not having their crops overlap with others in the area in the future.

FORESTA has also sponsored a rabbit breeding program that is doing well, the purpose being to distribute the specimens among peasant farmer associations, whose task it would then be to continue reproducing them for the benefit of their members.

The breeding method has been empirical so far, the explanation being that one cannot expect more in an area that does not have a tradition of rabbit breeding and where rabbit has not been seen as a substitute for the red and white meats that are in short supply.

Probably one of the most important developments in all this is that the Tavera peasant farmers, many of whom complain about the slow pace of the programs and partially kept promises, are becoming aware of the need to protect natural resources and are encountering new experiences that will eventually be of great use to them.

FORESTA is trying to promote this patient task of consciousness-raising, even in the rural schools in the Tavera Dam area.

In his speech introducing Carmona and the other Dominicans who spoke to the farmers, the director of FORESTA, Army Gen Manuel de Jesus Mota Henriquez, said:

"If all of us do not devote ourselves courageously to protecting our renewable resources, soils, vegetation, waters, fauna and fisheries, we could run the risk of incurring liability by omission for an uncertain future, marked by vast stretches of an unrewarding and unproductive desert, in the face of which our children would lament our unjustifiable inertia and rightly castigate our irresponsibility today."

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CSO: 5000

DOMINICAN REPUBLIC

PLANNING UNDERWAY FOR SABANA YEGUA DAM PROJECT

Santo Domingo LISTIN DIARIO in Spanish 4 Feb 80 p 8-B

[Article by Disraelis Guillen Castro]

[Text] The work to be done on the Yaque del Sur River to prevent flooding, which has been requested by the diocese of Barahona, is included in the overall program for the sphere of influence of the Sabana Yegua Dam, the National Institute of Water Resources (INDRHI) reported yesterday.

Lucas de Castro, the engineer director of the Sabana Yegua Project, asserted that "these efforts are included in a program of operations for the dam to enhance its effectiveness and, in passing, to control the flooding of the Yaque del Sur River."

"We will achieve the same thing with the San Juan River when the Sabaneta Dam goes into service," the INDRHI official explained.

Representatives of the Barahona diocese recently called for government action to channel, divert or dredge the Yaque del Sur River, which is regarded as the top priority problem to be resolved in the district. The Rotary Club and other organizations joined in this request.

In a document addressed to President Guzman Fernandez and to the public in general, the residents of Barahona pointed out that "when the Yaque del Sur overflows its banks, it destroys crops, floods towns, destroys bridges and roads and causes death, disease and epidemics throughout the southwest."

INDRHI has obtained financing from the IDB for studies on the development of the Sabana Yegua Dam sphere of influence. The 2.16 million peso loan comes from the Canadian Government as technical assistance for the Dominican people.

In turn, the Dominican Government pledged to contribute its share of 740,000 pesos. Thus, the study will cost 2.9 million pesos, de Castro explained.

The director of the Sabana Yegua project said that the primary objective is the preparation of studies and final designs for an irrigation and drainage project for the sphere of influence of the Sabana Yegua Dam. The following are the details of the basic studies:

- 1) Analyze all of the studies conducted to date that are directly related to the project area;
- 2) Undertake studies on regulating the Sabana Yegua Dam for irrigation, power generation and flood control purposes; and
- 3) Determine the current structure of land ownership and the social conditions of users.

De Castro added that although the studies are scheduled to be conducted over a 2-year period, a preliminary report would be submitted in 12 months, containing recommendations for carrying out the project.

He also indicated that owing to the topographical characteristics of the zone and the relationship between Rincon Lagoon, Lake Enriquillo and its ecology, the services of an environmental engineer were contracted; he will deal with all environment-related problems.

The INDRHI official also explained that the engineering studies would comprise irrigation and drainage and an operational plan to enhance the effectiveness of the Sabana Yegua Dam and control the flooding of the Yaque del Sur River.

In conclusion, de Castro said that "social agronomy will investigate markets and assess the impact of the development of the rural population. In this regard, the soil studies will indicate the best way to resolve the problem caused by the saline soils in Neyba."

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DOMINICAN REPUBLIC

WATERWORKS INSTITUTE TO BEGIN 15 AQUEDUCTS THIS YEAR

Santo Domingo LISTIN DIARIO in Spanish 9 Feb 80 p 13

[Text] Towards the middle of this year the National Institute of Waterworks and Sewage (INAPA) will begin construction on 15 aqueducts that will bring water to 55 rural communities around the country and benefit more than 67,000 residents of farming zones.

The total cost of the projects is 7 million pesos, including a \$5 million loan that is being negotiated with the IDB as outside financing.

Towards the middle of this week the executive director of INAPA, Francisco Fernandez Calventi, and the head of INAPA's Programming Office, Marco O. Rodriguez, met with the vice president of the IDB, Reuben Sternfeld, and the IDB's representative in Santo Domingo, David Core, to describe the scope of the program to them.

Fernandez Calventi reported that the bank executives were receptive to their presentation and that they have justified hopes that the loan will be approved soon.

The meeting between the INAPA officials and the authorized representatives of the IDB took place last Thursday in the middle of the afternoon at the IDB headquarters in this capital.

The aqueducts to be constructed represent the first group in the third stage of the National Rural Aqueducts Plan (PLANAR), which the state organization has been executing for several years.

It was reported that each community will take part directly in the construction work, mainly by contributing unspecialized workers.

The following aqueducts will be constructed: a multiple-purpose system in Los Guineos in Santiago Province that will benefit six rural communities; La Guazara in Barahona; the Tamarindo-El Salado multiple-purpose aqueduct in Bahoruco Province for three towns; Boca Cachon in

Independencia Province; another multiple-purpose one in Juan Adrian for two farming communities in La Vega, and an aqueduct in Magua in El Seybo.

There will also be a multiple-purpose aqueduct in Los Quemados, La Vega, for four farming districts; one in Tabara, Azua Province, that will serve five towns in Azua; a multiple-purpose aqueduct in Hato Viejo in Barahona Province for four communities; the multiple-purpose Jima aqueduct in La Vega that will serve eight rural towns, and the multiple-purpose Juan Luis aqueduct that will benefit two farming towns in Peravia Province.

In addition, there will be the multiple-purpose Los Corrales aqueduct in Samana for three communities; Las Terrenas, also in Samana; a multiple-purpose one in Canca La Reyna, Santiago, for three districts and locations; another multiple-purpose aqueduct in the Blanco district in La Vega for seven rural towns, and a multiple-purpose waterway in Cabria-Pajarito in San Cristobal Province that will serve four rural communities.

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CSO: 5000

SLASH-AND-BURN METHODS A THREAT TO AGRICULTURE

Bissau NO PINTCHA in Portuguese 18 Mar 80 p 2

[Excerpts] The slash-and-burn method for agriculture is assuming alarming proportions in our country, not only in the Oio, Gabu, Cacheu and Bafata regions, but also in the south, which is considered the country's granary. Our reporter was there and observed the scene. He reached the conclusion that if this method is to continue for a few more years, the title of "granary of the country" will be relegated to the archives of the history of those desert countries which, once upon a time, were fertile and covered with vegetation.

The situation is probably generalized in all regions of the country. This particular article refers, however, to the Quinara region. Our reporter was returning a few weeks ago from Nhala by helicopter. "We were flying over a very large area where the fire was just fulfilling its mission to either burn the forest in preparation for cultivation or to concentrate wild animals in a given area for hunting purposes.

"The southern and southeastern regions are known for their dense vegetation. However, the region we were flying over had no trace of green; it was a panorama of smoking black and grey hues. It looked like a vast cemetery of naked, colorless trees ready to embrace the desert. Just one lighted match had been enough to consign tens of square kilometers of forest to destruction by fire. This was the work of one man alone. However, the entire Quinara population would not be sufficient to cultivate this whole area. A small part of it will probably be used for cultivation. I am certainly not a specialist in soil or plants, but I feel certain that 10 periods of rainfall will not be enough to regenerate the vegetation destroyed by fire.

"Are we going to simply cross our arms and let innocent peasants calmly dig their own graves? Obviously, to veto the importation of matches (something which has been recently noted) is no solution.

"The well-known results of the slash-and-burn method will be disastrous for Guinea-Bissau in a very short time. This method fosters the desert's advance, accelerating even more the decrease of the rainfall, of the level of rivers and of the water table. Agricultural production follows suit.

Forests disappear, replaced by the savannah and later by the steppes: thus, the desert finds no barriers. The fauna disappears alongside the vegetation, and human survival becomes more and more difficult in this region.

"Since approximately 90 percent of our population is concentrated in rural areas, our country will progressively register an exodus to the cities, with the concomitant problems of unemployment and the increase in the cost of living, followed by increased imports, decreased exports and great losses in foreign exchange reserves. Ultimately, the situation will result in widespread hunger and disease.

"We should resort to modern technical means and foreign financing to combat desertification and the slash-and-burn method of agriculture. However, our most urgent priority should be the mobilization of our human resources."

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BRIEFS

DROUGHT AID--State loans and subsidies are to be made available to farmers hit by serious drought in SWA according to a statement by the Directorate of Agriculture and Forestry last night. The Directorate said the AG's Council had decided to grant special aid to farmers in emergency grazing areas. This would include loans and subsidies for the purchase of feed for cattle, as well as subsidies for the purchase of cattle licks, the hire of emergency grazing and the transporting of cattle to and from emergency grazing areas. Sales of beef slaughtered at abattoirs in drought-affected areas would be subsidised, so that farmers would be paid second grade light mass prices for third and fourth grade beef, the statement said. [Text] [Windhoek THE WINDHOEK ADVERTISER in English 12 Mar 80 p 2]

CSO: 5000

DROUGHT CONDITIONS IN VARIOUS REGIONS REVIEWED

Johannesburg THE CITIZEN in English 19 Mar 80 p 11

[Text]

HUNDREDS of South African farmers are entering their bleakest winter in years, owing to persistent drought conditions. Many of them are facing certain ruin.

A spokesman for the South African Agricultural Union, giving a breakdown of the drought situation in the country, said many farmers in the northwestern Cape were already on social welfare relief and many more were expected to join them.

The drought was continuing unabated in other parts of the country as well, possibly not as seriously. It was bad in the Little Karoo, the Western Transvaal and South-West Free State, and the Greytown area of Natal.

"Fellow farmers are rallying to help their stricken colleagues. Offers of fodder are coming in to us for transmission to the affected areas," said the spokesman.

Mr Frans van Wijk, chairman of the fodder bank, had appealed to all control boards and other bodies which could help to contribute aid and funds, to the cattle industry particularly.

Disaster level

A spokesman for the Department of Water Affairs reported that, generally farmers should have no water supply difficulties this winter. The present level of the country's irrigation dams was on average at 74 percent of capacity, he said.

The Agricultural Union spokesman told me the situation in the north-western Cape was rapidly approaching disaster level. Recent rains in the area had brought some relief, but not sufficiently to break the drought.

"If more and good rains do not fall soon the situation could become disastrous," he said.

There were critical shortages of bulk fodder in this area to help the farmer see their livestock herds — mainly sheep — through an expected bitter winter.

Critical

In contrast, conditions in the Boland were very favourable and promising harvests were expected.

In the little Karoo the drought was still near-critical.

If rains do not fall before winter, bulkfeeding schemes will have to be instituted to keep stock alive, he said.

For all practical purposes irrigation dams in the Little Karoo were empty. Lucerne that had been planted was suffering from lack of water and would not be able to provide winter fodder.

Parts of the northern Transvaal would have no winter fodder difficulties but other parts — particularly the Swartwater region — were facing serious difficulties because of the abnormally low summer rainfall.

been prevented by low dew levels.

Good rains had relieved the position somewhat in the western Transvaal and south-western Free State, but conditions were still bad. The recent rains had come too late for good plantings and many farmers had taken a hard knock.

The maize crop in the central Free State had not managed to benefit much from the recent good rains, but natural veld grazing — vital for the winter — had been given a good boost.

In Natal, conditions were generally favourable, except in the Greytown area where a serious drought had dominated the growing season.

"Farmers here will have to take emergency measures to get winter fodder," said the spokesman.

INVESTIGATION OF SOVIET TERRITORIAL WATERS OF BALTIC

Tallin SOVETSKAYA ESTONIYA in Russian 16 Dec 79 p 3

[Article: "Biological Shield of Baltic"]

[Text] Scientists of the Institute of Biology of the Latvian SSR Academy of Sciences have completed a three-year program for investigating Soviet territorial waters of the Baltic. With the help of the scientific ship, Dzintaryura, they conducted extensive observations in the coastal zone for a distance of about 700 miles--Baltiysk to Leningrad.

"We have obtained new information about the chemical composition of the water and the condition of the sea's floral and fauna," said the chief of the institute's laboratory for marine biology, R. Lagonovska, in a conversation with a TASS correspondent. "Special attention was devoted to the biological self-purification of the sea. As the materials from the expedition show, this process takes place normally and the level of pollution of the sea basin in our zone does not exceed the permissible concentrations. The scientists registered about 150 kinds of bacteria that assimilate and decompose petroleum hydrocarbons well."

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CSO: 5000

LAW ON PROTECTION OF THE ATMOSPHERE STUDIED

Moscow IZVESTIYA in Russian 5 Jan 80 p 2

[Article by Yu. Molin, corresponding member of the USSR Academy of Sciences, director of the Institute of Chemical Kinetics and Combustion of the Siberian Branch of the USSR Academy of Sciences, and K. Kutsenogiy, chief of the institute's laboratory: "Under Control of Automated Equipment"]

[Text] The collective of the Institute of Chemical Kinetics and Combustion of the Siberian branch of the USSR Academy of Sciences has become intimately familiar with the draft of the Law of the Union of Soviet Socialist Republics concerning the protection of the atmospheric air. The growth of industry and transportation are having an ever greater effect on the condition of the atmosphere that surrounds us. The question of its protection from pollution has been raised in good time.

As a result of photochemical reactions in the air, gases combined with microparticles of solid and liquid industrial wastes are transformed into aerosols which are known as "smog" and industrial smoke. Frequently these aerosols have an effect on the human organism that is more harmful than their individual constituent parts. And in order to improve the observation and control over the formation of aerosols, our institute has developed and manufactured an automatic photoelectric analyzer (spectrometer) of aerosol particles.

The automatic instrument has undergone basic testing in Novosibirsk and the oblast. Its testing was done in conjunction with inspection teams for gas purification and other authoritative agencies. The test showed that this instrument can not only give information about the composition and concentration of aerosols, but also conduct observations of the conditions for their formation.

We propose that chapter four include a provision concerning the need to use automatic instruments more extensively for controlling the condition of the atmospheric air. This will make it possible to solve the control problem with less effort and money. We think that, in order to successfully avoid the formation of aerosols, it is important for scientists to concentrate their attention on research on photochemical processes in the atmosphere.

LABORATORY STUDIES 'IMPORTED' AIR POLLUTANTS

Riga SOVETSKAYA LATVIYA in Russian 10 Jan 80 p 4

[Article by L. Gavrish, chief of the Ventspils Hydrometeorological Bureau:
"Control on the Border"]

[Text] Pollution of the atmospheric air is becoming a global problem. The heavy "breath" of large industrial centers, which is polluted with particles of smoke and soot, sulphur dioxide, carbon dioxide, nitrogen oxides and other gases, is picked up by sensitive meteorological instruments that are located thousands of kilometers away. As we know, in certain western European countries industrial discharges into the atmosphere have reached critical volumes. Harmful substances freely cross the borders of neighboring states along with the air currents. There is no doubt that one must fight against these "forced injections." It is the job of specialists in the area of international law to figure out how to do this. But it is clear any suit must be supported with proof. And here arises a task that involves much that is unknown: to study the transfer of atmospheric impurities over large distances and to evaluate concretely their increase and their origin.

This task was formulated generally in the concluding document of the Helsinki Conference on Security and Cooperation in Europe. The UN European Economic Commission, with the participation of the Soviet Union, developed an international program which envisions regular determination of pollutants in the air currents that cross the borders.

The scientific recommendations pertained particularly to calculations of the increase in impurities (within 48 hours) and their projectories. Incidentally, one can judge the strangeness of these trajectories if only by the strange terminology, which reflects all the complexity of the process that is being described. For example, on a level with such concepts as import and export of impurities, they use such word combinations as "imports of one's own impurities," and "exports of others' impurities," whose achievement acquires certain efforts.

At the beginning of this year at Ventapils work was started on a unique kind of laboratory for studying the transfer of pollutants across borders. This is a scientific base which will process information obtained from a network of meteorological stations that are located along the western borders of the Soviet Union.

Latvian meteorologists have been assigned an important mission--to open up the work front for controlling the distribution of atmospheric pollutants across state borders. The equipment and devices necessary for this have already been prepared. Specialists are impatiently awaiting the time when they will be able to begin analyzing the first sample.

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AIR, WATER POLLUTION DISCUSSED BY SUPREME SOVIET COMMITTEES

Kiev RABOCHAYA GAZETA in Russian 20 Jan 80 p 2

/Text/ A careful and thrifty attitude toward the environment is the main way to achieve improvement in the air quality in our cities and the water quality of our rivers and seas. On 18 January this was the subject of discussion at a joint session of the permanent committees on the protection of nature and the rational use of natural resources of the Council of the Union and the Council of Nationalities of the USSR Supreme Soviet.

Those presenting reports included V.A. Grebenok, leader of the deputies' preparatory committee and A.F. Borisov, first deputy minister of USSR Ferrous Metallurgy; they spoke on compliance with the laws concerning environmental protection by enterprises of the USSR Ministry of Ferrous Metallurgy.

Those who participated in the discussions noted that in the industry as a whole a certain stabilization has been achieved in recent years in the discharge of harmful substances into the atmosphere; a number of cities with developed ferrous metallurgy have noted a reduction in the average annual pollution levels for certain harmful substances. The proportion of polluted waste water in the total volume of effluent has been reduced.

At the same time the deputies emphasized that the measures which are being taken by the ministry and by the enterprises under its jurisdiction to prevent environmental pollution are still inadequate for the unconditional fulfillment of the 24th and 25th CPSU congress decisions and the requirements of the legislation concerning natural protection.

The committees adopted a decision in which they recommended to the USSR Ministry of Ferrous Metallurgy and to a number of other ministries and departments related to the metallurgical industry that they should undertake measures to eliminate the inadequacies noted by the committees in the matter of environmental protection and the rational use of natural resources.

Participants in the session included P.G. Gilashvili, deputy chairman of the Presidium of the USSR Supreme Soviet, A.P. Shitikov, chairman of the Council of the Union of the USSR Supreme Soviet and the leaders of a number of ministries and departments.

PROPOSED AIR POLLUTION LAW DISCUSSED

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 2 Feb 80 p 2

[Article by V. Balasheva, counsellor of justice, procurator in the Department of General Prosecution of the RSFSR Office of Public Prosecution, Moscow: "Accuracy Is Needed"]

[Text] The protection of people's health is the focus of attention by the Soviet state, and it is ensured by all measures, including environmental protection measures. This was stated directly in the USSR Constitution. In an age of scientific and technical revolution, and of the rapid development of industrial production, the cleanliness of the air is a very timely issue.

The state plan for economic and social development established specific targets for the construction of treatment facilities, the application of waste-free and low-waste technology and for new equipment which carries no environmental risk. However, these targets are far from being fully met. According to data from the office of public prosecutions, enterprises at the Bryanskaya, Kemerovskaya, Kuybyshevskaya, Lipetskaya, Permskaya and Smolenskaya oblasts and in the Udmurtskaya ASSR, have been extremely slow in putting to use the capital investments appropriated for protection of the air. Targets have not been met for the introduction of installations to trap and neutralize industrial gases in the Volgogradskaya, Kalininskaya, Moscovskaya, Saratovskaya oblasts and in the Karelskaya ASSR.

Here is another case. In Nevinnomyssk (Stavropol'skiy Kray) the GRES chimneys are discharging into the air unacceptably large amounts of sulfur dioxide and oxides of nitrogen. In order to reduce air pollution it was proposed to build a chimney 180 meters high. The schedule stipulated the first half of 1974. But construction still has not begun. Who should accept the responsibility for this? It should be first of all the officials of the GRES and the USSR Ministry of Power and Electrification.

Nor do the organs which are supposed to supervise the implementation of air protection measures always carry out their duties. As a result, some cities in the Komi ASSR, for example, have concentrations of carbon monoxide and nitrogen peroxide exceeding the maximum permissible levels. The public health inspectorate does not make full use of the powers granted to it; it does not call to account the officials guilty of violating the environmental protection laws. This has occurred more than once in the Kemerovskaya and Omskaya oblasts and in the Mariyskaya ASSR.

The officials of economic organs as well as the officials of the inspecting organs must meet the requirements for environmental protection. And I fully support the purposefulness of the draft of the Law Concerning the Protection of the Air. And I also support the new measures stipulated for protection of the air and the new guarantees that the air will remain clean. The main point is that they are being put onto a planned basis; they must be included in the plans for the economic and social development of economic sectors, regions and enterprises, which will be formulated with consideration for the long-term prognosis concerning the state of the air and which must be agreed to by the supervising organs.

Finally, the important issue of the determination of the maximum norms for harmful substances in the exhaust gases of cars, aircraft and other forms of transportation is being solved. It is also important that the natural protection organs are obtaining the right to limit, delay or halt completely the operation of those enterprises which violate the laws concerning the protection of the air. I support the proposal of the draft law concerning the direct ban on the opening of new or renovated enterprises which do not satisfy the requirements on the protection of the air.

It is also correct that the officials who are guilty of legal violations will be brought to criminal, administrative and material account; enterprises will be required to compensate for the damage inflicted on nature. But it would seem that a more specific statement should be made as to which violations they will be held responsible for. In my view, the new USSR law should enumerate the most serious violations of the legislation concerning air protection for which the guilty parties must be prosecuted using a criminal or administrative procedure. It should also be pointed out that responsibility for other types of violations is established by the laws of the union republics.

The soviets of people's deputies also have significant rights in the area of air protection. The soviets are supposed to coordinate and supervise the activities of the enterprises which are located in their areas. But it should be clearly stated in the law that the soviets of people's deputies carry out this work regardless of which agency has jurisdiction over the enterprises.

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POLLUTION FROM PRIDNEPROVSKAYA GRES PRESENTS PROBLEMS

Moscow TRUD in Russian 28 Feb 80 p 2

[Article by S. Ganz, doctor of technical sciences, personnel chief of the Dnepropetrovski Chemical-Technical Institute: "There Should Be No Wastes"]

[Text] In our day man is bringing immense natural wealth into the sphere of production. Billions of tons of fuel are burned. Ores are being extracted on a gigantic scale: iron, manganese, copper and aluminium. Chemical raw material is being extracted from the earth: sulphur, phosphorus and boron minerals. Along with this, dust, soot and harmful chemical compounds are discharged into the air, bodies of water and soil. Thus there is sometimes a significant violation of the balance of substances that exists in nature.

The requirements for protection of the environment have become more rigid in recent years. Many millions of rubles are being allocated for the construction of various kinds of purification installations. But still, despite the increased expenditures, we are not receiving a significant effect. It is considered sufficient to purify the discharged gases of dusts. Power blocks and metallurgical aggregates are equipped with electrofilters and gas purification installations. They catch 80-85 percent of the solid particles but they allow chemical compounds into the atmosphere.

For example, the losses caused by the entry of sulphur dioxide into the atmosphere. This is also confirmed by foreign data: the damage from one ton of discharge of sulphur dioxide is evaluated by specialists at \$680.

This is not the first year we are insisting on the introduction of chemical methods of gas purification. They not only protect the air from pollution, but also bring additional raw material resources into production.

The Predneprovskaya GRES with a capacity of 2.4 million kilowatts stands out on the city's silhouette. It consumes low-quality highly sulphurous Donetsk coal.

We suggested that the power engineers use the installations we designed for removing sulphur compounds with sulphite-bisulphite solutions. It has been

proved that under many different kinds of industrial conditions that they make it possible to ensure good gas purification and to obtain about 900 tons of commercial sulphuric acid annually.

The power engineers sent our recommendations to their branch institute which deals with gas purification. An answer came back: the suggestion was not accepted: the operation of the installations, they said, required sodium sulphite and there is not enough of it in the country. A clear mistake! Our installation does not use, but can, if necessary, produce sodium sulphate, that very material which is in short supply to which they referred. This was explained. A new objection was received in response: the Predneprovskaya GRES, they said, is an old enterprise and there is no place for the proposed installation.

This is hardly a reasonable remark. But it shows primarily that they simply did not wish to deal with our document. After all, in addition to the alkaline variant, we had in mind applying also ammonia method of gas purification. In certain cases when there is sufficient gas pressure--and there is at large electric power stations--these installations don't require any special amount of room because they are located in the smoke pipes.

The ammonia method makes it possible not only to protect the atmosphere from pollution, but also to obtain 1,200-1,300 tons of ammonium sulphate annually. This is a valuable fertilizer for which the demand on the world market is constantly increasing.

We were told that it would not be expedient to spend time on purification since a design had been developed for the station's reconstruction and there would be smoke pipes that are 320 meters high which would save the city's atmosphere from pollution.

In general the power engineers' enthusiasm for high pipes seems to me to be a serious economic and ecological mistake. They are costly. For the amount of money the construction of one pipe costs it would be possible to equip the entire station for chemical purification. And this, after all, is not only the elimination of the impurities from the gas, but also additional valuable products which could be sold and all expenditures could be fully recouped in 1-1.5 years. High pipes which discharge harmful substances into the upper layers of the atmosphere disperse them over large expanses and practically do not reduce the harmful effects. No matter how we try to prove the advantage of chemical methods, nothing was accomplished. Obviously the power engineers give primary consideration to the honor of the departmental uniform.

Alkaline or ammonia installations can solve an important national economic problem. In our country we do not have enough sulphur to satisfy the needs of chemistry or the national economy as a whole. At the same time thermal and electric power stations and industrial enterprises annually discharge enough sulphur dioxide into the atmosphere to cover a significant proportion of the deficit of this raw material in the country.

Ferrous metallurgy enterprises are a significant source of chemical raw material. Take the Nikopol' ferrous alloy plant. The ore furnaces discharge a considerable quantity of blast furnace gas which, if it were put into production, could produce millions of tons of menthanol, the main raw material for obtaining many chemical products, particularly synthetic non-toxic automobile fuel. And billions of cubic meters of natural gas would be saved this way.

In Nikopol' they were receptive to our idea. Even this year the plant is beginning to construct an installation for transforming blast furnace gas into hydrogen. The application of this installation in technology will make it possible to increase the efficiency of ferrous alloy production significantly. Unfortunately we have not yet begun to use carbon monoxide here.

At many metallurgical plants rolled metal and pipes are dipped in acid baths. Part of the iron is dissolved in sulphuric acid. Bulky and costly sulphuric acid installations are constructed where crystalline ferrous sulphide is separated from the dipping solution. This is a product for which there is no demand. The plant has to store it on rented unproductive land. The rains and the melted snow wash away the piles and the ferrous sulphide frequently gets into bodies of water, kills fish and damages hydrotechnical installations.

In conjunction with specialists from the Dnepropetrovsk metal products plant, we proved that it is possible to obtain from the etching solutions products that are necessary to the national economy: ammonium sulphate and iron oxide, and pigment for the paint and dye industry. Imagine what a reserve this is for producing mineral fertilizers and dyes!

Forge scale and slag are formed in the production of zinc oxide. Sediment is formed during the manufacture of manganese concentrate. From these wastes we have created microfertilizers which are applied to the soil along with such chemical elements as zinc, copper, manganese, boron and others. Their effects have been tested by agronomists of Kiev, L'vov and Dnepropetrovsk. When applied to the soil along with basic fertilizers and mineral fertilizers, the microfertilizers increased the productivity of grain crops by 3-4 percent and vegetables--by 10-12 percent.

We have suggested to the oblast agricultural administration that they apply microfertilizers when planting grain and vegetable crops. We encountered no interest in this even microfertilizers could increase the yield of grain by almost 100,000 tons and vegetables, by 50,000 tons.

There are quite enough examples to convince us that there should not be unused wastes in a single industry and that any technology can become an additional source of valuable products. It is only a matter of motivating the enterprises and departments to apply modern chemical methods of removing raw material from discharged gases and turning them into mineral fertilizers, fuel and so forth.

Unfortunately, nothing has yet gone beyond the stage of discussions and good intentions. But the stockpile of scientific developments, patents and semiindustrial experiments is quite adequate to issue initial data for designing the corresponding industrial aggregates and technologies.

Apparently the national economy needs an interdepartmental agency with the corresponding rights whose duty it would be to take technical devices found in one branch and introduce them into others. This same agency should review the designs of new aggregates and allow the sale of only those which solve the problem of comprehensive utilization of all raw material elements.

We are now developing legislative acts directed towards accelerated implementation of the decree of the CPSU Central Committee and the USSR Council of Ministers "On Improving Planning and Stepping up the Influence of the Economic Mechanism on Increasing the Efficiency of Production and Quality of Work." Obviously it is also necessary to have a document which would establish great material motivation and increase the moral and service responsibility of enterprises and branches for the development and production of products from discharged gases and other wastes.

11772
CSO: 5000

IRKUTSK POLLUTION COMPLAINT AIRED

Moscow PRAVDA in Russian 6 Feb 80 p 3

[Article by V. Yermolayev, PRAVDA correspondent, Irkutsk]

[Text] The letter was short: "On the southeastern outskirts of Irkutsk a special site was established for the collection of municipal wastes. It is simply a garbage dump. It is about a half a kilometer away from residential buildings. Fumes and foul odors make their way into the depths of the apartment blocks. The local organs usually dismiss the requests of the residents to close this nuisance and move it farther away from the city." The authors of this letter were O. Glazunov, chairman of the Council of the All-Russian Society for the Protection of Nature, which comes under the Eastern Siberian Branch of the USSR Academy of Sciences, and V. Zubkov, the secretary of this council.

We set off for the outskirts of the city accompanied by one of the authors, Mr. Glazunov, who is the head of a laboratory at the Institute of Geochemistry and a doctor of geological and mineralogical sciences. The "temporary" dump arose 28 years ago, when there was vacant land here. Since that time the Primorskiy, Yubileynyy and Akademgorodok areas have grown up on the left bank of the Angara. They form an architectural ensemble, one of the most beautiful in Irkutsk. The left bank area is also the site of new buildings of the Siberian Division of the Academy of sciences, the university, the polytechnical institute and of schools. Next to it is a green zone--a favorite recreation spot for tens of thousands of people.

"But walking in this area brings less and and less pleasure," said O. Glazunov.

One must agree with him. The rubbish is burning. Dirt is not thrown on it, as called for by the rules. Shrouds of acrid smoke frequently reach the residential blocks and the green areas. The trees in the area are drying out and becoming sparse. The heated air, full of gas, even effects the instruments set up in the institute laboratories and causes gross errors in measurements.

The Kay River valley, which used to be beautiful, is being filled with municipal wastes. The dumping area is located at the watershed. The rain and spring waters wash harmful substances into the Irkut.

Can it be that such gross violations of the public health norms do not alarm the leaders of the Sverdlovskiy Rayon, where this is taking place?

"We are very alarmed," said A. Kotsark, chairman of the rayispolkom. "We are planting the waste areas with trees; we have planted more than 250 hectares already. Scientists are particularly busy with the establishment of a forest park zone. However, the unfortunate dump largely negates these efforts. Residents have demanded for a long time that it be closed. Alas, we do not have the right to make the decision; this can only be done by the gorispolkom, where they say: 'It is impossible to close it.'"

Incidentally, three years ago K. Kuzakov, who was then the deputy chairman of the gorispolkom, in response to complaints from Irkutsk residents, reported to them and the editor of PRAVDA: "Measures have been taken to look for a new site." N. Dashko, who now occupies the same post, had heard nothing of this and said:

"The dump cannot be moved. This would require a one-third increase in the number of garbage trucks, of which there are not enough even without the extra load. The city's population is increasing every year by about 20,000 people; new apartments, stores and enterprises are being built. There is a commensurate increase in domestic and other wastes. And the truck fleet is growing very slowly. The RSFSR Ministry of Housing and Municipal Services has promised to send additional garbage trucks to us, but we do not have the machines yet.

Help is, of course, necessary. But at the same time it is better to resolve the matter locally. A number of organizations in Irkutsk are receiving garbage trucks. Some of the special vehicles are being re-equipped; they are not being used for their intended purpose. Clearly, it is time to concentrate this kind of transport into a single motor pool."

"However, we are not sitting on our hands doing nothing," said N. Dashko, "They have removed an asphalt plant from the left bank of the Angara. A fence has been put around the dump; fire trenches have been dug around it. There are fewer fires there now."

And there should not be any; for that situation to occur earth has to be thrown on the garbage every day. Many trucks do not drive up to the trenches and the fence; they dump their loads on the forest plantings. The gorispolkom decision which prohibits this practice is not being carried out. It may seem strange, but the city soviet itself is one of the offenders: its public utilities administration has been fined for land use infractions and for damage to the forest.

The method of residential garbage collection also arouses censure. In the evenings, as the trucks appear at the buildings, a loud bell is rung. The residents, fearful of being late, rush headlong towards the truck with buckets and packages in their hands. It turns out that containers and other necessary equipment are also in short supply.

At present plans are being discussed for the "improvement of operations" at the notorious dump. But when will it be moved beyond the city limits?

"We shall wait a while," they reply at the gorispolkom. "The State Republic Institute for the Planning of Municipal Construction is preparing the technical and economic groundwork on ways to utilize wastes. The plan is scheduled for realization in 1990."

But is that not too long to wait? Complacency and condescension are inappropriate when the discussion concerns the protection of the environment, and people's health and spirits. Irkutsk and its environs must be clean. And, by the way, the green zone of the city on the Angara forms an indissoluble whole with the forest tracts of Baykal.

8543

CSO: 5000

SECOND LEG OF VOYAGE OF FLOATING 'LABORATORY' DESCRIBED

Riga SOVETSKAYA LATVIYA in Russian 4 Jan 80 p 4

[Article: "The Ocean is the Scientists' Laboratory"]

[Text] The "Georgiy Ushakov," a scientific research ship of the State Oceanographic Institute recently completed its 22nd trip into the North Atlantic. The personnel of the expedition which lasted more than two months included the chief of the hydrobiological laboratory of the Latvian Republic Administration for Hydrometeorology and Control of the Natural Environment, L. V. Daksha, along with scientists from many cities of the country. Our correspondent, Ye. Shabad, asked her to discuss the purpose of the expedition.

"Research on the environment and the effects of human activity on it is now being conducted throughout the world. A large contribution to the development of this area of science is being made by soviet scientists who are participating in the implementation of the most varied programs. According to one of our specialists, continuous observations are being made of the hydrometeorological conditions at the ocean stations of the North Atlantic (OSSA).

"There were about fifty scientists on board the 'Georgiy Ushakov': meteorologists, weather forecasters, aerologists, oceanographers, hydrochemists and geophysicists. We worked at the Charli station. This ten-square-mile area is sufficiently distant from the sources of pollution but it still reflects the general conditions of the changes in the environment that are typical of considerable expanses of the ocean. It is no accident that Charli is located apart from the active sea routes.

"Our hydrobiological group dealt mainly with the study of the bacterial- and microzooplankton and also the transformation of toxic pollutants under the conditions of the ocean environment. Of special interest to us were bacteria that assimilate organic substances. In certain measure they reflect the degree of man's penetration into the environment. The results of this research will help in the development of recommendations for reducing the discharge of wastes into the ocean and for eliminating violations of the ecological systems of the world ocean and the earth as a whole.

"All of the analyses--and about 700 of them were done--were made on samples taken from various depths: beginning with 2 meters and ending with thousands of meters. The ship's laboratory was equipped with everything necessary, including an autoclave which was used for creating a sterile environment. We placed the bacteria we had obtained in it. The basic conclusions of the scientists will be generalized after stationary research is done at the Oceanographic Institute.

"Although we were located many hundreds of miles away from dry land, life on the ship was quite like it is on land. Political information sessions were held regularly and wall newspapers were published. The important holidays for us were the days of the cities represented by people working on board the ship.

"But the most memorable thing for me is the atmosphere in which we lived and worked. We took the success of each worker in the group to be our common victory."

11772

CSO: 5000

DRAFT OF ANIMAL PROTECTION LAW DISCUSSED

Moscow IZVESTIYA in Russian 26 Feb 80 p 3

/Article by V. Petrov, doctor of jurisprudence and professor at Moscow State University: "Showing Concern for Nature"/

/Text/ The Communist Party and the Soviet government are developing Leninist ideas concerning the protection of nature, and as part of their efforts in this regard they conduct continuous work to improve environmental protection legislation and to bring it into line with the level of scientific and technical progress which has been achieved and the requirements of ecological safety for society. In evaluating this work Comrade L.I. Brezhnev, general secretary of the CC CPSU, said to the 25th CPSU Congress: "It is very good that we now have well-grounded legal norms which make it possible to carry out natural protection work in a purposeful manner."

The draft of the Law Concerning the Protection and Use of the Animal World encompasses the achievements made in this area during all the years of Soviet rule. At the same time it provides concrete answers to the many acute questions which arise from the present-day ecological situation. According to the draft of the law, the top-priority goal is the preservation of the entire species diversity of animals and the preservation of the biological integrity of natural communities; the satisfaction of our economic requirements is put into the framework of rational, non-exhaustive use.

The draft of the law under discussion sets out the following sphere of actions: the protection and regulation of the use of wild fauna on dry land, in the water, the atmosphere and the soil, i.e., the use of animals which are in a state of natural freedom. Excluded from this circle are agricultural and other domestic animals, as well as wild animals which are kept or bred in captivity or under semi-free conditions for economic, cultural or other purposes.

The question of neglected animals, pigeons, etc. in cities and other settled areas is being solved in a similar manner. The urbanized environment has excluded them from natural relationships with nature and turned

them into elements of man's surroundings. This by means indicates indifference toward instances of cruel treatment of animals or of violations of the rules which concern the keeping of animals under domestic or street conditions. These cases are viewed as violations of the laws concerning social order, public health or of the rules concerning the use of residential premises.

The draft establishes for the first time in a normative manner the tenet that the animal world of the USSR is state property. However, in contrast with the habitats of wild fauna--the land, the depths of the earth, the waters and the forests--the animal world is not included by the draft in the category of exclusive property of the state; it permits individual objects of the animal world to be the property of cooperative and public organizations.

It would seem that this provision has no theoretical or practical justification. It is impossible to imagine that there might be two or even several owners in one forest complex, i.e., the state as the owner of the trees and shrubbery, and, let us say, a cooperative or public organization as the owner of particular animals species which have commercial significance. If, however, the property in the particular objects of wild fauna are acquired by the cooperative or public organizations through trapping or the creation of either open air cages or wild animal farms, a transition takes place in such cases, with objects of the animal world being shifted into the category of material valuables with all the legal consequences which arise from that.

An analysis of the draft of the law makes it possible to distinguish three ways of protecting the animal world. The first is to preserve the habitat of animals by banning the siting, planning, building or opening of enterprises, facilities, cities or other settlements, as well as by banning the performance of other economic activities which do not satisfy the requirements for the protection of animals' habitats.

But in comparison with similar bans used to protect other parts of nature, including in particular the air, water and forests, the draft of the law does not contain guarantees for the fulfillment of the indicated directives as the right of the state organs for the protection and regulation of the use of the animal world or of other especially empowered organs to prohibit an economic or recreational activity if it exerts a harmful influence of the state of the animal world.

It is all the more essential to eliminate this gap in the draft because of the fact that animals' habitats often coincide territorially with the sphere of economic activity.

Another way to protect the animal world is to regulate the number of animals through hunting or fishing, as well as through measures concerning

the reproduction of wild fauna. While the draft of the law lists this way as among the fundamental requirements for the protection and use of the animal world, it does not, however, include it among the measures for the protection of the animal world.

This inadequacy is also reflected in the interpretation of the purposes of hunting. The draft takes these to be the satisfaction of the demand--expressed by both the national economy and Soviet citizens--for the products derived from hunting, as well as provisions to meet the sporting interests of the public. At the same time hunting represents the only acceptable means for regulating the number of animals when it exceeds ecologically sound limits. The goals of this regulation also need detailed and reasoned elaboration; they include the protection of the public's health, the prevention of damage to the national economy and to the surrounding natural environment, the preservation of the genetic fund of animals and the implementation of provisions to ensure the biological integrity of natural communities.

The rules for hunting and fishing have limited for a long time what could be caught in terms of quantity and in terms of the species of animals which can be taken. However, this procedure is only weakly linked to the reproduction of the animal world.

It would be advisable for the draft of the law to indicate that the annual catch which is obtained from hunting and fishing must not exceed the annual reproduction of a particular species of animal within the framework of their ecologically substantiated number.

According to the draft of the law, the third way to protect the animal world finds expression in a complete ban on the destruction or taking of land animals, fish and other water animals in order to protect their genetic fund and to bring the future reproduction level up to an ecologically sound number of communities. It is carried out by the establishment of reserves and sanctuaries, as well as other especially protected areas; it also involves searching for species in captivity which are rare or threatened with extinction in order to subsequently increase the numbers of wild animals by adding the former. The list of forms which protection may take should by rights include the USSR Red Book, which contains the names of rare or endangered species and subspecies of mammals, birds, amphibia and reptiles.

The draft devotes a special article to the USSR Red Book. The clause on the Red Book was approved, at the request of the USSR Council of Ministers, by the USSR Ministry of Agriculture. However, in all these cases nothing is said about the legal consequences of including animals in the Red Book.

The draft of the law makes it mandatory for enterprises, organizations and institutions to provide compensation for damage caused by a violation of the laws concerning the protection and use of the animal world. It should be added that transportation and other organizations performing

activities which are linked to increased environmental risk are required to compensate for the damage caused by raids on animals along their migration routes, if these organizations are unable to prove that they could not have prevented the damage.

At the same time "owners" of animals in the form of offices and agencies empowered with their protection and the regulation of their use have the right to demand compensation for damage which has been inflicted; they also have the responsibility to prevent and to compensate for damage caused by animals which they own, use, or have at their disposal. In particular, they must answer for the damage caused to the forest industry as well as for crop damage caused by wild animals, etc. The draft resolves the issue of compensation for damage in a one-sided manner--in favor of the animal world alone.

The draft of the law puts under USSR jurisdiction the right to direct the animal world, which constitutes state property, as well as the right to establish regulations, rules and norms for the protection and use of the animal world, etc. which apply to the entire country. This arrangement is characteristic of that which applies to all natural objects which comprise state property. In contrast with other objects, however, the land animals, as an object of protection, have not been provided with a special regulating organ operating on a national scale. Some functions in this area are carried out by the USSR Ministry of Agriculture. But it is an economic organization, which is responsible for an entire branch of the economy. At one time this kind of association was justified. But now, if one takes into account the fact that the protection of nature and the rational use of its resources have become an independent state function, this combination of varied and conflicting tasks looks artificial. The need arises for the creation of a single, centralized organ for the protection of nature, an organ which will not be burdened by other economic concerns.

The issue of the functional division of the protection and economic exploitation of the animal world also applies to the sphere of state (supra-departmental) control. State control over the condition and use of terrestrial animals in the RSFSR is exercised by the Main Administration for Hunting and Animal Preserves. State control over the protection of fish stocks is the responsibility of the USSR Ministry of the Fishing Industry. Both agencies are primary consumers of natural resources. It turns out that they control themselves on behalf of the state.

At the present time our country is devoting serious effort toward the development of norms for the maximum permissible concentrations of harmful substances and of maximum permissible emissions of harmful substances with reference to the protection of man's health. And the time has now come to begin working on a system of indicators to ensure the protection of animals' habitats; norms must be worked out for the amount that can be shot or caught, and criteria for the preservation of the genetic fund of animals must be developed. These and similar issues must be reflected in the Law Concerning the Protection and Use of the Animal World.

BRIEFS

UNDERGROUND TREMOR--Petropavlovsk-Kamchatskiy, 18 Feb--This morning at 7 hours 3 minutes local time the residents of the oblast center felt an underground tremor with a force of up to 5. "The epicenter of the earthquake was in the Bay of Avachinsk, approximately 50 kilometers south of the city," said L. Sinel'nikov, head of the seismic station of the USSR Academy of Sciences's Institute of Earth Physics. There were no casualties and no destruction. [Text] [Moscow PRAVDA in Russian 19 Feb 80 p 6] 8543

KAMCHATKA EARTHQUAKE--Petropavlovsk-Kamchatskiy--A seismic outburst was registered yesterday at 7 hours 3 minutes local time along the shores of Kamchatka. It caused an earthquake on the peninsula. In the oblast center the motion of the soil reached a force of 5. No destruction was caused. The instruments at the Petropavlovsk Seismic Station of the USSR Academy of Sciences's Institute of Earth Physics showed that the epicenter of the earthquake was 50 kilometers from the city in the Bay of Avachinsk. The seismic activity which has been noted more than once in this area in recent times, is caused by tectonic processes at the point where the ocean and dry land meet. In the last three weeks more than 10 underground tremors have been registered here. [Text] [Moscow TRUD in Russian 19 Feb 80 p 4] 8543
The earthquake, which took place at 3 hours 30 minutes in the morning local time on the peninsula of Kamchatka, brought no casualties or damage. Its epicenter, as shown by the instruments of the Petropavlovsk Seismic Station of the USSR Academy of Sciences, was 80 kilometers to the southeast of the oblast center, in the Bay of Avachinsk. [Text] [Moscow PRAVDA in Russian 13 Feb 80 p 6] 8543

DUSHANBE EARTHQUAKE--Dushanbe, 14 Feb--Seismic waves with a force of 3 on a 12-point scale were reached today at 1 hour 10 minutes Moscow time in Dushanbe and Khoroga. The underground tremors caused no damage. At the epicenter of the earthquake, which was located in the mountains of the Central Pamirs, the force of the tremor was about 5. [Text] [Moscow PRAVDA in Russian 15 Feb 80 p 6] 8543

EARTHQUAKE ARCHIVES--Obninsk, Kaluzhskaya Oblast--Information about all underground disturbances which have occurred on our planet in the last 25 years can be obtained at the Central Archives of Earthquakes. It was established as part of the Obninsk Observatory of the USSR Academy of Sciences's Institute of Earth Physics. Every day information about underground tremors which have occurred in our country or abroad flows into this major center for seismic observations. The data are carefully studied. The exact time, force, location and other features are established for every earthquake. All this is subsequently recorded on magnetic tape and put into a card file. A search for the necessary materials does not require any extraordinary expenditure of time. The archives are equipped with an automatic search system. /Text/ /Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 16 Jan 80 p 47 8543

KIRGIZ EARTHQUAKE--Frunze--On 18 January at 1 hour 47 minutes Moscow time an earthquake with a force of 5 at its epicenter took place in Kirgizia. According to reports from the Institute of Seismology of the Kirgiz SSR Academy of Sciences, it was centered in the northern foothills of the Zaalayskiy Range. Underground tremors were felt in Daraut-Kurgan with a force of 3-4 and in Khaydarken with a force of 3. There were no casualties and no destruction. /Text/ /Moscow IZVESTIYA in Russian 20 Jan 80 p 67 8543

NONPOLLUTING ODESSA PLANT--Odessa--A plant built on the shores of the Black Sea, at the Port of Odessa, has not effected the state of the coastal waters. All the wastes from the production of ammonia are safely neutralized by a powerful biological treatment station; afterwards the discharge becomes absolutely harmless for marine fauna and flora. This is confirmed by studies carried out by biologists: Black Sea goby, mackerel, plaice and various algae--all the inhabitants of the sea feel good, are growing and developing normally. Scientists helped the plant to create the "factory of cleanliness." Their plan was used to build a complex for two-stage treatment of industrial effluent. The wastes from chemical production first undergo mechanical treatment; the biological station comes into operation later. Specially grown microorganisms neutralize the toxic products. /Text/ /Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 29 Jan 80 p 37 8543

CS0: 5000

MINISTER NØRGAARD ASKS NEW RULES FOR POWER PLANT CONSTRUCTION

Copenhagen BERLINGSKE TIDENDE in Danish 9 Feb 80 p 11

[Text] Power plants should not be planned or built before environmental considerations have been incorporated into the preliminary outlines, according to the Ministry of Environmental Affairs. It will therefore work for a revision of the rules for approval of power plants and a review of the plans for power plants. But the ministry will not bear the responsibility for the consequences.

The first upbeat for negotiations on the change was given in a letter from Ivar Nørgaard, minister for environmental affairs, to Bent Sørensen, head of the Copenhagen council, and Poul Nielson, energy minister. In the first instance the move is aimed at discussion of the location of the new Amager plant, which has been planned for 6 years. The discussion will also embrace the possibility of division into several smaller plants.

Ivar Nørgaard Not To Be Quoted

This came out at the latest of the weekly secret press conferences in the Ministry of Environmental Affairs, where Minister Ivar Nørgaard does not allow himself to be quoted.

The minister was asked during the meeting what minister is responsible if the decisions of the minister for environmental affairs lead to an energy shortage. Without quoting it can be reported that the minister himself refused the responsibility and passed it on to the power plants and the minister for energy.

Also the demand in the land-use planning report of the minister for environmental affairs to aim at high, dense housing construction in urban areas, which was mentioned with reference to energy supply.

The minister was asked whether there was a question of running the energy policy from the Ministry for Environmental Affairs. Without quoting it can be reported that the minister denied that. The responsibility for providing energy remains with the minister for energy.

The meeting also confirmed that in the Ministry of Environmental Affairs consideration is being given to the energy policy initiative of turning state support to alternative sources of energy, such as biogas plants and windmills, over to rural communities that are not reached by such collective energy supplies as the natural gas network. In the government's March energy report, which has not been changed, it was provided that small communities and isolated residences must depend to a great extent on electric power, including power from nuclear power plants.

8815

CSO: 5000

POLLUTION IN KISAMOS BAY KILLS FISH

Athens TO VIMA in Greek 29 Feb 80 p 9

[Article by Giannis Garedakis]

[Text] Khania, 28 Feb--The destruction of one of the largest fishing grounds in western Crete, in Kisamos Bay, started early last summer. By the hundreds of thousands, fish began to wash ashore along the beaches, either dead or dazed and blind--according to the findings of experts. Appropriate governmental services were mobilized and university professors were called in to locate the cause of the destruction, and even frogmen were used in the investigations. Since then, and even though so many months have passed, the destruction has continued. The fishermen in the area are still without work, the scientists and investigators have not made any announcements, and in light of the new summer period, an even more serious question is emerging already because of the disappearance of the fish:

That is, will this so beautiful and picturesque Kisamos Bay be able to be used for sea-bathing in the summer months?

The silence so far of the responsible municipal services as well as of the scientists who have given their attention to this matter is considered inexplicable, and it surely tends to diminish the seriousness of the problem, there being not a few residents as well as fishermen in the area who believe that the destruction has stopped. But in an announcement made yesterday, the Khania Veterinary Directorate is explicit on this:

- The dying of fish in Kisamos Bay has not stopped--rather, dead fish continue to be cast ashore almost daily.
- No official announcements have been made about Kisamos Bay because not all the reports of the responsible scientists who have investigated the matter have been received as yet.
- It clearly emerges from those reports which have been received and also from information we have obtained on the data contained in the

reports which have not been sent to us yet that the death of the fish in Kisamos Bay is caused by the effect on them of toxicants, and especially by the effects of copper and ammonia, which are being found in increased amounts in the sea water of Kisamos Bay.

The whole problem is a difficult one, and the difficulty lies in pinpointing the source or sources of production of the toxic substances which are killing the fish. Efforts which have been made, even including the use of frogmen, to locate the sources of these toxicants have been unsuccessful. In its Communication 217 of 22 February 1980 to the Ministry of Agriculture, the Nomarchy of Kania is calling for a resolution of the Kisamos Bay problem as rapidly as possible.

It is clear from the above that the means which have been used up to now for helping the investigators have been unable to lead to the collecting of those facts which could solve the mystery of the annihilation of the fish. For this reason, it is asserted by many people and is stressed also by the mayor of Kastellion, And. Skhetakis, that by now the Ministry of Agriculture should have asked for technical help (bathyscaphes, and so forth) from the international community, so that the source of the toxicants could be located.

As for the issue of the unsuitability of this sea area for bathing in the summer, the Kania nomarchy doctor, Tsipourakis, said to me yesterday in reply to a question:

"Certainly I myself cannot know this for a fact, but such a contingency ought to and will be examined by the responsible services of the Ministry of Social Services."

"The involvement of the services and the scientists," states Kastellion Mayor And. Skhetakis, "must be ongoing and vigorous. After all these months we have not been briefed on anything. Is the destruction due to toxicants or to microbial substances? How much will we be able to use our open sea in the summer for bathing? We have been uneasy, we have been upset for a number of months now. Unfortunately, we cannot say the same thing about the authorities."

The Kisamos Bay area, an exceptionally beautiful marine region, along with Kastellion and the surrounding villages, is preparing for and hoping to welcome thousands of tourists this summer. But it is urgently needed that answers be given by the appropriate services to the above questions, and it is certainly necessary for measures to be taken to stop the destruction which began a number of months ago.

12114

CSO: 5000

SARONIKOS GULF POLLUTION TO STAY

Athens AKROPOLIS in Greek 6 Mar 80 p 2

[Text] The Saronikos Gulf is already a "dead" sea, and it appears from the circumstances of the case that it is never going to be cleared of its pollution.

This conclusion--which is an actually documented statement--emerges from an official reply by the Ministry of Merchant Marine (YEN) to a group of deputies who framed a relevant inquiry on this matter to the minister, Mr Kefalogiannis. Specifically, in the response by the YEN the following is stressed:

In the Saronikos Gulf, the handling of the pollution problem presents great difficulties.

The ships which are seen at the "roadstead" outside the port of Piraeus are waiting their turn to enter for loading and unloading, and a number of them are polluting the sea with sewage and garbage during their stay in the waters of the Saronikos.

Thoughtlessness

The YEN points out of course that there is strict monitoring of these ships by the appropriate port agencies, and that large fines are being imposed on violators. But it is admitted that the concentration of the population around the shores of the Saronikos and the thoughtlessness of the majority of the people here have created this very acute problem.

The more characteristic points in the letter from the YEN to the deputies are the following:

"It has been accepted internationally that the polluting of the seas is due for the most part to discharges which are made from sources on dry land (urban sewage, industrial effluents, and so forth) and only to a small extent to discharges which are made by ships. This problem becomes more acute in closed sea areas such as the Saronikos, which

in fact--because of the great concentration of population and the increased industrial activity--is giving us great difficulties in trying to deal with this problem.

"Within the framework of the present laws related to this matter and based on its responsibilities, the YEN is taking all the necessary prevention and control measures (policing the area, imposition of severe penalties against violators, and so forth). By way of illustration, it is mentioned that during 1979, the port authorities of the Saronikos Gulf confirmed a number (54) of violations involving pollution of the sea and imposed fines totaling a sum of 11,100,000 drachmas.

"Only one moorage for laid-up ships is functioning in this area, at the Gulf of Eleusis. This anchorage is the best suited one in the whole nation, and it is accepting only ships for laying up which sail under the Greek flag. Most of these have already returned to service because of a lessening of the shipping crisis, and those remaining are expected to sail again shortly. Moreover, the laid-up ships cannot be regarded as causing a heavy burden on the sea environment, because no activities are in progress on them and their machinery is not operating. Finally, as far as the ships found outside the port of Piraeus (at the roadstead) are concerned, these are waiting their turn to enter the port to effect loading and unloading operations."

12114

CSO: 5000

BRIEFS

RELOCATION OF FACTORIES--Many industrial outfits, including also cement plants, will be transferred away from the capital area in order to reduce the polluting of the environment. This statement was made yesterday to the Chamber of Deputies by Deputy Minister of Social Services Ger. Apostolatos, in response to a question which was set forth by P. Kritikos and which referred to the polluting of the environment in the capital area and in the Saronikos Gulf. Mr Apostolatos added that a law draft is being prepared whose stipulations provide for the reduction of pollution as well as the protection of the environment. He also said that a joint agreement between the nomarchs of Attiki and Korinthia was signed recently with which the measures to enforce penalties against industries which pollute the environment are defined. The government--he observed--has made headway on the matter of the Athens sewer system, which will reduce the polluting of the Saronikos when it is completed. In any case--he added--the Ministry of Social Services is monitoring this area with the samplings it is taking, about 2,000 in number. [Text] [Athens AKROPOLIS in Greek 6 Mar 80 p 2] 12114

CSO: 5000

ENVIRONMENT MINISTRY: SWITCH TO COAL COULD HARM HEALTH

Oslo AFTENPOSTEN in Norwegian 12 Feb 80 p 2

[Editorial: "The Worst Alternative"]

[Text] The Ministry of Environmental Affairs has made an assessment of the health and environmental effects of different kinds of energy sources and a research report was released which shows that air pollution from coal power plants can be a significant health problem for large groups of people. The report is scarcely edifying reading, but in a debate where the alternatives to continued expansion of hydroelectric power are being earnestly sought, we are probably wise to study the conclusions of the report. The medical effects of coal power plants can extend over the entire spectrum from increased frequency of deaths and appearance of lung cancer to acute and chronic respiratory illness. Those who are struck first are usually those who already suffer from heart or lung diseases or are afflicted with allergy problems. It is asserted with certainty that coal power plants emit a number of carcinogens, besides so-called mutagenic substances which can cause hereditary damage to future generations.

This scientific material, which points up the health effects of a proposed coal power plant by the Oslo Fjord, or more exactly at Emmerstad in Vestby, merits serious reflection. Heavy environmental pollution from this type of power plant is hardly surprising to anyone, but only a few people understand that the air pollution carries such implications for health of the character and degree described in the research report.

In contrast to most Western industrial countries, Norway is in the fortunate position of being able to solve our energy problem without having to rely on alternative sources, be they nuclear or coal. The problem has been revived because different political groups have strengthened their opposition to the highly necessary development of some existing watercourses.

The recommended Alta-Kautokeino construction puts the problem in relief: No matter how much we might want it, we cannot have our cake and eat it too. If hydroelectric power construction is rejected, it means that we are pointing the way to clear alternatives which can satisfy the growing energy needs of

this country. In this debate fossil-fired power plants have been presented as an "open sesame" which can solve all the unpleasant problems. Paradoxically enough many have been inclined to say "no" to continued development of hydroelectric power--without a doubt the most favorable to the environment of all the alternatives--and instead accept the most polluting and most dangerous to health of all, the coal power plant.

In large measure it is only Norwegians who can permit themselves the luxury of being able to discuss alternative energy sources without obligation. For the Swedes, who will have a referendum on nuclear power next month, it is a matter of hard reality. Basically it is a question of which form of society they will choose.

If the Swedes should unexpectedly say "no" to nuclear power, Sweden must in the next 25 years base itself on the use of coal or oil or both. To make itself even more dependent upon oil imports would be hazardous. But also the coal society is a frightening thought and would be an environmental catastrophe. One large coal power plant (1,000 megawatts) emits 750,000 tons of poisonous fallout per year. That will be the ultimate murder of all the Swedish lakes and otherwise entails damage to health of a character which the newly released research report describes.

9287

CSO: 5000

ENVIRONMENTAL AGENCY REPORTS ON GREENLAND AIR POLLUTION

Oslo ARBEIDERBLADET in Norwegian 4 Feb 80 p 6

[Article by Arne Olsen: "Norway's Ruhr"]

[Text] Porsgrunn: Industry or us? Jobs or clean air?

Concern is spreading in Greenland after repeated leaks and gas emissions from industry in the area. Greenland's most important and profitable part has demonstrated its most frightening side during the past weeks.

The escape of sulfur dioxide from Union in Skien has been many times the recommended limit. Asthmatics and people with respiratory diseases were not able to move about outdoors. But healthy people also noticed the emission. Coughing, nausea, headaches, runny noses, and sore throats were experienced.

At Rafnes five workers had to be given oxygen after a chlorine leak. The stinging aroma of chlorine was noted more than 1 mile away. Also, Norsk Hydro's factories on Herøya in Porsgrunn have had lesser accidents.

The government's Pollution Control Agency (SPT) at Porsgrunn released some frightening statistics on the emissions in the air at Greenland: 12,100 kg of sulfur dioxide per day are emitted from Greenland's industry. That amounts to 4,416 thousand kg per year! Or 500 kg per hour, if you prefer.

At Brevik and at Dalen near Brevik clothes must go through the washing machine once, hung until dry, and then washed again. The reason is the large amount of dust emission from cement production at Norcem.

Washing in this area would have not less than 547.5 tons of dust exposure if it hung out all year.

Or if we imagine a warm summer day with good drying, when the wash needs a couple of hours before it can be brought in, 125 kg of dust is emitted from Norcem during this time. In addition, increased maintenance is required on homes and automobiles.

The Union Brug recovery plant at Skien has been the center of attention in recent weeks. SFT has set a limit of 3.5 kg of sulfur dioxide per hour, but the emission has been far greater, so great that on Wednesday the factory was ordered to stop production of cellulose at the recovery plant.

The Porsgrunn factories on Heroya are the greatest polluters on an annual basis.

During a 24-hour period at these Hydro installations the following results are obtained according to SFT's measurements: 3.4 tons of dust, 2 tons of sulfur dioxide, 2 tons of nitrous oxide, 2.5 tons of chlorine and hydrochloric acid, 0.8 tons of vinyl chloride, and 1 ton of ammonia.

All this goes out into the atmosphere during the course of 24 hours. In addition 1.2 tons of nitrous oxide is formed by combustion.

But large amounts of waste from Hydro's production are sent out into the water.

These include 10 kg of mercury, 1,040 kg of chlorinated hydrocarbons, and 3,650 kg of soot per year, and 39,000 human body equivalents of phosphorus and 1.3 human body equivalents of nitrogen compounds.

But Things Are Improving...

Porsgrunn: paradoxically enough--the large petrochemical installations at Rafnes and Saga in Bramble have led to a reduction in the measurable pollution in Greenland.

As a result of the petrochemical concessions, strict pollution control orders were issued to the existing industries in the area. Funds spent in the last five or six years for pollution control and plant modernization amount to 600 million kroner.

Especially obvious are the emissions from the largest polluter in the area, Norsk Hydro's factories on Heroya in Porsgrunn. In 1968 the factories released over 18 tons of sulfur dioxide per day, and at the beginning of 1979 this amount was reduced to only 2 tons.

Scientist Leif Stige at SFT in Porsgrunn said, "We have noted a marked improvement, but the negative results of pollution are still so great that we cannot be satisfied with the situation. The acute situation with Union in Skien during the recent weeks shows the importance of our watching the situation closely, and we will continue to do that."

Advantages

The strict environmental orders given to Greenland's industries have caused protests from the responsible business leaders.

Today the protests have become still. In several cases it has been proved that modernizing production has economic advantages, not the least of which is that production has become more efficient in these energy critical times.

Greenland Smog

The most conspicuous result of Greenland's pollution is in the air, in Greenland smog.

Dense smog which reduces visibility to zero on the roads, but even more serious, on the sea. The area has much sea traffic, and the channels to the petrochemical plants are considered dangerous.

What happens is that the sulfur dioxide is transformed to sulfates, and together with natural mist and other pollutants creates smog.

Measurements will now be taken to determine how much of the smog is caused by natural conditions and how much by pollution.

Damage To The Forest

At the beginning of the 1970's there was alarm when large belts of forest near the Porsgrunn factories turned brown and the needles fell from the evergreen trees.

Without a doubt the strong concentrations of sulfur dioxide were a contributing factor.

Now it appears that this situation has stabilized, even though repeated dry summers and resulting bark beetle attacks have caused large financial losses for the forest owners in Telemark, perhaps most in Bramble.

Dangerous To Health

The big question is obviously what are the health related effects of 10 years of pollution.

A comprehensive health study was carried out last fall, but the results will not be published before the summer vacation.

Leif Stige said, "We have, however, no grounds for declaring that pollution has affected health conditions at Greenland."

One phenomenon that is being especially watched for is photochemical smog resulting from petrochemical plants.

This is characterized by odor, mist, attack on the mucous membranes and throat, and forest damage.

This has not been noted so far, but SFT has made measurements of high concentrations of ozone on warm days, one of the indications of the formation of photochemical smog.

"In many ways we are the watchdogs of Greenland industry, but we only advise the politicians. They are the ones who must give orders to the businesses within the framework of the best available technology, the total pollution situation in the area, and emission limits established abroad," said Leif Stige of SFT.

9287

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INSTITUTE: OIL DRILLING IN NORTH NOT ENVIRONMENTALLY SAFE

Oslo AFTENPOSTEN in Norwegian 4 Feb 80 p 5

[Article by Georg Parmann: "Equipment For Oil Production In Arctic Waters Not Good Enough"]

[Text] The technology and equipment for oil production in the North Sea is not sufficiently advanced to take care of oil spills, either at sea or along the Arctic coast. With today's knowledge of biology and physics can we not decide whether oil activity in these waters should take place in winter or summer? And can exploitation of fossil resources in the Barents Sea take place sooner than we expect? In order to develop sufficient security and readiness we need a significant research input, and it should begin now.

Scientist Erling Senstad of SINTEF [Society for Industrial and Technical Research] said this in a conversation with AFTENPOSTEN. Together with scientist Knut Gaseidnes he has an assignment from the government's environmental protection organization to carry out an evaluation of the security and preparedness of future oil activity in the Arctic.

"We have three types of resources in the Arctic which can in the future be economically interesting. They are fishing resources, energy resources, and the Arctic areas which are possible future sites for recreation, outdoor life, and tourism. It is plain to see that these three interests are on a collision course," Senstad said.

"We have studied the possibilities for cleaning up after a large oil spill in the Arctic with the technology we now have, both with chemical and mechanical equipment. A number of physical conditions put obvious limits on the effectiveness of defense of the environment. Among other things the temperature conditions and the ice will be serious obstacles.

"It is, however, difficult to advise about which time of year will be best for oil exploration, seen from a pollution standpoint. In the summer the danger of an accident is least and the possibilities for cleaning up a

spill are greatest, but at that time of year the biological consequences of a spill can be very great. In the winter the danger of an accident is great and the possibilities for cleaning up the spill are less. On the other hand the danger of great environmental damage is less than in the summer.

"Our greatest misgiving is that we know too little about the physical and biological environment in these areas to set up a reasonable strategy for its protection. At the same time it is Utopia to think that the energy resources which can be found under large parts of the ocean bottom in the Arctic will not be exploited. This cannot be done in a totally safe way using North Sea technology. Neither can the problems be solved instantly. Therefore correct research in that area is urgent. I think that we must remain at least 5 years ahead in this work, and I am afraid that the time is already beginning to run away from us," Senstad said.

Some work is already taking place with the intention of developing environmental protection readiness in the arctic. Among other things Norway's Technical University and SINTEF will participate together with the United States and Canada in a Canadian program to evaluate the use of chemical means in the Arctic. Various efforts have also been made with microbic breakdown of oil on Svalbard, but that is far from giving us sufficient knowledge to make oil exploration in the Arctic secure.

9287

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DRILLING OFF FINNMARK INCREASES DANGER TO BIRD POPULATION

Oslo AFTENPOSTEN in Norwegian 27 Feb 80 p 5

[Article by Georg Parmann: "Oil in North Disaster for Sea Birds"]

[Text] "If an escape of oil takes place in connection with oil drilling on Fugløy Bank off the coast of Troms and Finnmark, it could mean a catastrophe for the sea bird population in North Norway. The rather limited escape of oil outside of Varangerfjorden last winter, when about 20,000 sea birds perished, shows how serious the situation is. The disheartening thing in this situation is that practically speaking no work has been done for the purpose of elucidating the unfortunate effect of oil operations on bird life."

Scientific Assistant Robert Barrett at Tromsø Museum said this in a conversation with AFTENPOSTEN. He has led the museum's sea bird project since 1978 and looks with despair on the search for oil we are now on the verge of in North Norway.

"Eighty-five percent of the Norwegian sea bird population nests from Røst and northward as we look off from the Barents Sea and Svalbard. Roughly estimated, there are a million nesting pairs of puffins, 400,000 nesting pairs of kittiwakes, 100,000 pairs of common guillemots and 25,000 pairs of auks. And this is a substantial part of all of Europe's population of sea birds," says Barrett.

"The other large nesting area for sea birds in Europe is located on the north coast of Great Britain. Here nest puffins in about half the amount we have in North Norway and there are approximately just as many kittiwakes and somewhat more auks and common guillemots. Oil operations on the British part of the continental shelf in the North Sea and the transport of oil to land have many times resulted in oil spills with significant sea bird deaths as a consequence. This is why I look with great alarm at the fact that possibilities for oil drilling and recovery of oil will now be found also on the coast of North Norway. In my opinion there are no places on the coast of North Norway where, all things considered, it can

be justified to start searching for oil if one has consideration for the sea bird population," says Barrett.

"The spill in Varangerfjorden showed how little oil is needed to kill great numbers of sea birds. A little oil spot on a bird has the effect that the plumage loses its water repellent properties. The bird becomes wet and cannot manage to keep warm. To compensate for the loss of warmth it tries to dive after food. Cold and hunger quickly put an end to birds."

"Oil drilling will take place in the summer when there are large concentrations of birds in nesting places farthest out seaward. At this time there are millions of birds in coastal waters. For example, about 200,000 puffins nest on or near North Fugløy, an area which lies very near the planned search area. Should we risk a blowout like in Mexico, I have no doubt that we will have oil spread along the entire coast here in the north. But the disheartening thing is that it is far from necessary for there to be a blowout to have catastrophic consequences for sea birds. Even so-called controlled discharges can in the long run be a menace to biological life in the ocean and to sea birds," thinks Barrett.

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CSO: 5000

NATURE PROTECTION SOCIETY: NORTH OIL DRILLING HAZARDOUS

Oslo AFTENPOSTEN in Norwegian 27 Feb 80 p 5

[Article by Georg Parmann: "Nature Protection Society: Oil Safeguards in North Not Good Enough"]

[Text] In a letter to the Parliament Industrial Committee, Norway's Nature Protection Society has requested that vital importance be attached to the protection of our food resources and the total marine environment when a decision is made regarding oil drilling north of 62° latitude. In the opinion of the Nature Protection Society this decision should be a plain "no" to the search for oil.

In the letter the Nature Protection Society claims that the requirements for oil safety equipment have not been fulfilled as presupposed and planned. Available reports clearly indicate that the oil safety equipment will not be able to prevent large amounts of oil spills from causing great harm to the marine environment and its resources of fish and birds. The society called attention also to the fact that the uncertainty regarding the oil's effect on life in the sea has been cited in support of allowing the oil drilling to start, and that Parliament in reality is being invited to take a stand on full-scale oil operations north of 62° latitude without the social consequences of the operations having been discussed.

Big and vital differences have been unveiled in the understanding of how the requirements for the oil safety equipment are intended. This disagreement has slipped into the parliamentary report insofar as it accepts the fact that the effectiveness of the oil safety equipment is far worse than first supposed. On the basis of this uncertainty and the report's other shortcomings, the Norway Nature Protection Society claims that Parliamentary Report No 46 does not constitute an acceptable basis for a decision in Parliament regarding the start of oil drilling in the summer of 1980. The Nature Protection Society denies also that the level of risk is acceptable and points in this connection to experiences of recent years and to scientific investigations.

NORWAY

STATE NUCLEAR SAFETY GROUP TO INVESTIGATE DUMP HAZARD CHARGE

Oslo AFTENPOSTEN in Norwegian 27 Feb 80 p 5

[Article: "Effects of Radioactive Waste Investigated"]

[Text] The State Pollution Inspectorate (SFT) and the State Institute for Nuclear Safety will now investigate whether it is safe for radioactive waste to be dumped at the Grønmo waste disposal dump in Oslo. If there is a risk of harm to the waters in the vicinity, the State Pollution Inspectorate can with authority granted by the water protection law intervene and prevent dumping of this sort.

"I find it strange that Radiumhospitalet [the Radium Therapy Hospital] is dumping waste which is still radioactive at a municipal waste disposal dump," says Director Johan Baarli, who since January has been the chief of the State Institute for Nuclear Safety. It is the State Institute for Nuclear Safety which formulates the rules for the storage of radioactive waste, but the responsibility for handling the waste rests on individual users--industrial concerns, hospitals and other institutions.

A few hundred concerns or other institutions in Norway use radioactive material and the State Institute for Nuclear Safety makes yearly inspections.

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NORWAY

BRIEFS

INDUSTRY SPENDS ON POLLUTION--Oslo 12 Feb--Since 1974 Norwegian industry has invested more than 3.5 billion kroner to reduce polluting emissions. The total investment on pollution approaches 4 billion kroner, according to a survey in the publication NORGES INDUSTRI. In 1979 about 172 million kroner was loaned by the Industrial Bank to Norwegian industry to improve the external environment, and about 88 million kroner to improve the working environment. The entire loan quota was used up. Also, government guarantees were given to financing and other credit institutions with a view to environmental projects. The guarantees totaled about 200 million kroner--about 136 million outside and about 64 million inside. These figures are lower than for 1978. The Industrial Bank also loaned 41 million kroner to businesses with energy saving projects in 1979. Government guarantees for the purpose came to about 35 million kroner. Director Helge Fredriksen of the Federation of Industries said, "We believe that at least 60 percent of the program planned for 1974-1983 is now completed. Investments for improving the working environment are also increasing." [Text] [Oslo AFTENPOSTEN in Norwegian 12 Feb 80 p 2] 9287

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END

SELECTIVE LIST OF JPRS SERIAL REPORTS

WORLDWIDE SERIAL REPORTS

WORLDWIDE REPORT: Environmental Quality
WORLDWIDE REPORT: Epidemiology
WORLDWIDE REPORT: Law of the Sea
WORLDWIDE REPORT: Nuclear Development and Proliferation
WORLDWIDE REPORT: Telecommunications Policy, Research and Development

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